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SH20-2165-2

Installed User Program

A Departmental Reporting System
Version II
Users Guide

Program Numbers: 5796-PLN

This manual describes the functions and capabilities of the system and programs. Complete instructions are included for producing a variety of management reports from data bases built and maintained by the user.

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Third Edition (December 1981)

This is a major revision obsoleting SH20-2165-1

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CHAPTER 1. INTRODUCTION

This User's Guide for A Departmental Reporting System, Version 2 (ADRS II for short) is a task-oriented reference manual intended for all types of users--beginners through experienced data processing professionals.

ADRS II is a group of computer programs that allows you to record, calculate, select, sort, analyze, tabulate, format, display, and print business information. Although the system was designed primarily as a business tool, the limits of its use as a general-purpose information retrieval, analysis, and reporting system are more external than they are internal. That is, the system design limits are less important than the limits imposed by the real-world environment in which ADRS II operates.

The paragraphs that follow address the problems of that real-world environment, the solution offered by ADRS II, publications support for ADRS II, and the approach taken in this User's Guide.

SUGGESTIONS FOR THE FIRST-TIME USER

Two IBM manuals which are very helpful to the first-time user are:

1. A Departmental Reporting System II - Student Text (SC20-1893).

2. ADRS II - Training and Reference Manual (SE22-7007).

Sign-on procedures, using the SETUP, DATA, REPORTS, and other basic commands are discussed thoroughly in these texts. The first manual contains terminal sessions and explains only the basic commands. The second manual goes into more detail and is helpful to the user who is familiar with the basic ADRS II commands. The second manual also contains terminal sessions.

PUBLICATIONS THAT SUPPORT ADRS II

This User's Guide (SH20-2165) provides all of the procedural and reference data needed by both users and data processing specialists.

After proficiency has been achieved with ADRS II, the user may refer to the Quick Reference Guide (GB20-0058) as a handy source of ADRS II command information.

Additional reference data (useful mainly to programmers) for installation and internals of ADRS II may be found in ADRS II Installed User Program, Systems Guide (LY20-2415).

ORGANIZATION OF THIS USER'S GUIDE

The material in this user's guide is organized into task-oriented sections grouped into the following major chapters:

Chapter 1. Introduction: Provides general information.

Chapter 2. Basic Commands: Provides detailed discussion of basic commands for setting up, loading, saving, and examining an application.

Chapter 3. Advanced Commands: Discusses operation in the express mode, creating tables of commands/responses, deleting records, and using FILL and FREE.

Chapter 4. Commands for File Manipulation: Discusses setting up and processing data files, data entry and editing, shared files, external data files, and files in other APL applications.

Chapter 5. Data Control Commands: Discusses protection of the data base, special input/output, examining setups, changing express mode separators, and setting up report output controls.

Chapter 6. Dealing with APL Character Data: Discusses management of APL character data, expressions, matrices, and variables.

Chapter 7. Miscellaneous Tasks: Includes information on error recovery, and a glossary of ADRS II commands.

Appendixes: Provides more information on job flow, terminal types, reports and graphs, and ADRS II workspaces and files.

DESCRIPTION OF TERMS

Data Files

ADRS II is a complete system for both creating and using files of information in business applications. These information (data) files are formatted in tabular row-column arrays. A row within the array is analogous to a record, and the columns are analogous to the information fields within the record. Each record occupies a single line (row) within the tabular array.

In order to access any record within a file, each record must be assigned a unique access code, or row identification. Once a row identifier has been assigned to a record, any component or (field) of the record can be accessed by specifying the row-column coordinates of the component.

Data files are created and updated by keyboard entries made at the user's terminal, and/or by extracting data from other files.

Processing of Data Files

Data files are processed for data inquiry, data analysis, or report preparation purposes. Processing operations include:

- Addition, subtraction, multiplication, exponentiation, division, or min/max comparison across columns or down rows. The calculation result is stored in a column or row reserved for the results.

- Selection based on the comparison of one value to another. A decision or action is produced based upon whether one value is less than, greater than, equal to, greater than or equal to, less than or equal to, or not equal to, the other value.

- Sorting the rows (records) of a data file in ascending or descending numeric or alphameric order, based upon the information contained in one or more columns of the rows.

- Consolidation, which involves the selection of those rows of a data file that contain totals and/or subtotals for shipment, or transfer, from one user (the shipper) to another user (the consolidator). The consolidator retrieves the data received from one or more shippers, and consolidates that data into a single data file with summary data added.

Reports

Reports are derived from processed data files. The data file columns to be included, their arrangement within the report, the spacing between the columns, and the headers and text over the columns are all user-defined. The rows (records) of the data file that will appear in the report, as well as their order of presentation, are also user-defined. When, as a result of sorting, the selected data file records have been grouped in some manner, one or more control break levels can be defined where totals or subtotals will appear. A title can be generated within the body of the report for each such control break record grouping. Footnotes can also be provided at each control break, or at the bottom of each page. Page breaks on control breaks can also be specified.

For highly structured data files, spreadsheet-type patterned reports can be specified, in which each line of the report is precisely defined by a setup statement that specifies the row number or text to appear on that report line, and any calculations to be performed on the data to produce the entries made in the report.

For data files containing multiple columns of multiple rows for recording the value of some variable as a function of (for example) time interval, department, branch, region, or division, a graph or bar chart (histogram) can be generated from the data file.

Permanently Stored Application Data

The following data that you create for your application is permanently stored with the ADRS II application for use or modification/updating whenever required:

- The format and layout of the data files used with the application
- All data files used with the application, reflecting the most recent updates and calculations performed on those data files.
- All predefined job setups for data entry, consolidation, and graph or bar chart generation tasks.
- All predefined report setups for repetitively generated reports.
- All stored data file processing programs for data inquiry, analysis, and report generation tasks.
- All user-defined variables and look-up tables.
- Report page dimensions (for example, line width, lines per page, top and bottom margins, and line spacing).

Once an application has been developed and debugged, most of the foregoing stored data (other than the data file itself) remains relatively fixed. At this point, data file updating, data inquiry and analysis, and report generation functions require for their execution a relatively small number of simple ADRS II commands.

One-Time Special Reports

One-time special reports, for which the data file processing and report setup requirements have not been predefined and stored, can be generated by entering and executing the required processing commands and statements, and then executing a LIST command. This command allows you to specify the report title, the data file columns to appear in the report, the order in which the selected columns are presented, and the spacing between columns. The special report is then generated.

BASIC ELEMENTS OF THE ADRS II TIME-SHARING SYSTEM ENVIRONMENT

The basic elements of the time-sharing environment include:

- Your Terminal. This provides the means of communicating with the time-sharing system. You send messages to the system by typing in the individual characters on the terminal keyboard. Messages received from the time-sharing system are printed out or displayed at your terminal.
- The Central Computer Facility. The computer facility is connected by telephone lines or cabling to your terminal. It contains all of the storage and computing facilities needed for accomplishing ADRS II work tasks initiated from you terminal.
- The ADRS II Application Program. This program contains all of the instructions required by the computer to perform ADRS II work tasks. The ADRS II program is one of many such application programs stored in a public library within the central computer facility. When you want to perform an ADRS II work task, the computer refers to the ADRS II program for its instructions.
- Your Active Workspace. When you sign onto the time-sharing system, the central computer facility assigns you a space to work within the computer. While you are online with the system, this workspace is devoted exclusively to performing the tasks that you specify, and also temporarily stores the data that is produced by these tasks.
- Your Private Library. It would be impractical to store in the active workspace all of the files of data and setup instructions needed for your applications. Moreover, when you sign off from the time-sharing system, the active workspace that you used is reassigned to someone else, thus all of the information created during a work session would be lost unless it can be filed in permanent storage. The central computer facility provides you with permanent storage space in your own private library, accessible only to you and other authorized users. When you complete each task, an image of the active workspace is saved in your private library. Whenever you need the stored data for another task, an image (copy) is retrieved from you private library and put back into your active workspace.
- High-Speed Printer. The central computer facility includes a high-speed printer that is capable of rapid production of lengthy reports. When the volume of reports to be produced makes it impractical to use the local printer at your terminal, your report can be directed to the high-speed printer for generation.

MODES OF TERMINAL OPERATION

You can operate your terminal in the following modes:

- Desk Calculator Mode. This mode exists when no ADRS II operation is in progress. If you are already familiar with APL (A Programming Language), then you know that APL expressions can be entered in this mode. If you aren't familiar with APL, don't worry about it. There is no need for you to know anything about APL unless your application requires complex mathematical operation operations on the data base.

- ADRS II Conversational Mode. This mode exists whenever the central computer is performing a function under the control of the ADRS II application program. Your terminal switches from the desk calculator mode to the ADRS II conversational mode when you enter an ADRS II command to perform some function. While in the conversational mode, the computer sends prompting messages and information messages that are printed or displayed at your terminal. You respond to these messages by typing in the appropriate return message to the computer. There are actually several submodes of the converstational mode:

  - Normal Conversational Mode. This mode is available to all terminals. All prompting messages sent by the computer are printed or displayed, and you are required to respond to each prompting message.

  - Express Mode. This mode, also available to all terminals, speeds up the execution of commands by entirely or partially suppressing prompting messages. It is intended for experienced users who do not need the assistance of prompting messages.

  - Full-Screen Editing (Data) Mode. This mode is only available to 3270-series display terminals in systems that have the full-screen auxiliary processor (AP124 or AP126) Facility. All user-entered commands, prompting messages, information messages, and user responses to prompting messages are displayed on the bottom line of the display. The remaining lines of the display are used for displaying records within a data file. The full-screen display of the data file allows you to search through the file for the records to be edited, and to see your keyboard-initiated updates actually appear in the records as each record is edited or added to the file.

  - ADRS II Dialog Mode. This mode is only available to terminals in systems that have the interactive productivity facility. The ADRS II dialog mode is actually an adjunct of the normal conversational mode. You can call up display panels containing menus and explanations that guide you to the correct ADRS II function.

TERMINAL TYPES

You can have one of two types of terminals. If you have a display terminal (one with a screen), refer to A below. If you have a hard-copy terminal (one that has a typewriter type of printing device), refer to B below.

A DISPLAY TERMINALS

This section provides a description of display terminals.

A display terminal contains a keyboard (APL or Non-APL) and a display screen that displays your keystrokes and all system messages. To obtain a hard-copy output, you must use either a local printer or the system (high-speed) printer.

SIGN-ON

To sign on to the system, refer to "Sign-on and Sign-off" on page 25.

DEFINING THE TERMINAL SETUP

Refer to "Defining a New Application" on page 25 and "Changing the Name of an Application" on page 32 for details. You identify your terminal as a display terminal. You are then given an opportunity to change the display dimensions (line width and number of lines per screen) if your terminal does not have the standard dimensions (line width of 80 characters, with 24 lines per screen). Next, you specify the type of keyboard (APL or non-APL). You are also asked to strike the semicolon and exclamation mark keys on your keyboard.

DIFFERENCES BETWEEN APL AND NON-APL KEYBOARDS

See Appendix A for the differences between ADRS II operations with APL and non-APL keyboards.

MAKING ENTRIES

When you are making an entry, you type each character, then strike the ENTER or RETURN key. A cursor symbol on the screen shows you where the next character will be entered.

CORRECTING TYPING ERRORS

If you catch the typing error before striking the ENTER or RETURN key, simply backspace the cursor until it is over the incorrect character, and type in the correct character.

3270 SERIES TERMINALS WITH FULL-SCREEN EDIT CAPABILITY

Terminals with the full-screen edit capability (see "Using Data and Scroll Modes with Full-Screen Edit" on page 42 for details) have powerful on-screen data entry/editing capabilities, coupled with a scrolling capability that lets you scan through a data file or report. Many of the subcommands associated with full-screen edit can be executed by means of program function keys (PF keys) on the keyboard.

When a 3280-series printer is included in the terminal, hard-copy printouts can be obtained. The local 3280-series printer must be on the same controller as the terminal.

B. HARD-COPY TERMINALS

This section provides a description of hard-copy terminals A hard-copy terminal contains a keyboard (APL or non-APL) and a typewriter-type printing device. Each keystroke entered by the operator is printed. All system messages are also printed.

SIGN-ON

To sign on to the system, refer to "Sign-on and Sign-off" on page 25.

DEFINING THE TERMINAL SETUP

Refer to "Defining a New Application" on page 25 and "Changing the Name of an Application" on page 32 for details. You identify your terminal as a hard-copy terminal, and indicate the type of keyboard (APL or non-APL). You are also asked to strike the semicolon (;) key on your keyboard.

DIFFERENCES BETWEEN APL AND NON-APL KEYBOARDS

The right parenthesis ()) is used on APL keyboards to prefix all APL system commands (except GO). On non-APL keyboards, the double quotation mark character (") is used in place of the right parenthesis.

MAKING ENTRIES

When you are making an entry, you type each character, then strike the RETURN or ENTER key.

CORRECTING TYPING ERRORS

If you catch the typing error before striking the ENTER or RETURN key, use the backspace key (and the space bar if you overshoot) to position the carriage at the first error character on the line. Then, strike the ATTN key (the / key on some terminals) once. The system automatically feeds the paper up and then prints a right parenthesis (or an APL carat) under the error, then feeds the paper once more without spacing to the right, providing you with a clean space to enter the correction and retype the remainder of the line.

PRINT DIMENSIONS

Print dimensions and line spacing for the printer are set up by the SETPAGE and SETSPACE commands (see "Setting Up Report Output Controls" on page 248 for details).

BASIC TASKS IN DEFINING AND USING SIMPLE APPLICATIONS

This section outlines the tasks involved in defining and using a simple application. The application is defined or used while it is contained in your active workspace. When an application is not being used, it is saved in your private library.

LIST OF TASKS

TASK NO.	
1	Overview
2	Setting up, creating, and updating the data file
3	Processing of the data file
4	Setting up and generating a simple report

TASK 1: OVERVIEW

The basic ADRS II commands and some simple applications are listed in Figure Figure 1 on page 9.

- You define an application as follows:

1. Load a fresh copy of ADRS2 from the public library into your active workspace.

2. Assign the application a unique name under which it will be filed in your private library.

3. Define the format and layout (setup) of the data file used in the application (see Task No. 2).

4. Create the data file defined in step 2 by entering data into the columns of each record (row) in the file (see Task No. 2).

5. Predefine (set up) the processing, format, and layout required to produce each standard report that is to be generated from the data file (see Tasks 3 and 4 below).

6. Save the application in your private library under its assigned name.

- You Use an application by retrieving it from your private library for the following purposes:

1. To update the data file by adding/modifying records (rows) (see task 2).

2. To process the data file for data inquiry, data analysis, and preparation for report generation.

3. To generate predefined reports by simply calling up and executing the previously specified report setup (see Task 4 below).

4. To generate one-time special reports not previously defined by setting up the preprocessing, format, and layout requirements at the time the report is generated.

Note: Commands preceded by a right parenthesis ")" are APL system commands. All other commands are ADRS II commands.

FUNCTION BEING PERFORMED	COMMAND	TASK NO.
Load a fresh copy of ADRS2 into the workspace from public library n*	)LOAD n ADRS2	1
Name a new application (assign WSID)*	)WSID wsid	1
Save (store) the active workspace (application) in your private library*	)SAVE	ALL
Retrieve an application whose name is wsid from your private library, and load the application into the active workspace*	)LOAD wsid	ALL
Set up the format and layout of a data file	SETUP	2
Use full-screen edit capability for creating and updating the data file	DATA	2
Create/update individual data records left-to-right across selected columns while viewing the record being updated (not used in full-screen edit mode)	INPUT	2
Enter data into selected columns of selected records without viewing the entire record (not used in full-screen edit mode)	FASTROW	2
Enter data into selected rows down a selected column (not used in full-screen edit mode)	FASTCOL	2
Enter a new rowid, or change rowid	ROWIDS	2
Perform the following preprocessing operations independently of the report setup:		
Immediate arithmetic calculations	CALCULATE	3
Store an arithmetic calculation program	PROGRAM	3
Execute a stored calculation program	COMPUTE	3
Select records included in report	SELECT	3
Sort selected records	SORT	3
Set up method of handling zero entries, negative numbers, and numbers greater than 999 in numeric columns of reports	SETSPECIAL	4
Set up a predefined report	SETREPORTS	
Generate a predefined report	REPORTS	4
Set up and generate a one-time special report	LIST	4
Report page setup	SETPAGE	4

*See sections "Defining a New Application" on page 25 through "Loading an Application into the Active Workspace" on page 31 in Chapter 2 to obtain detailed instructions for the)LOAD)WSID, and)SAVE commands.

Figure 1. Basic Commands Used in Simple Applications

TASK 2: SETTING UP, CREATING, AND UPDATING A DATA FILE

- You set up a data file format in an application by defining the following (see Figure 2 on page 11):

1. The left-to-right sequence of the columns (fields) for each row (record) of the file.
2. The heading for each column.
3. The width of each column.
4. Designating each column as containing either alphameric or numeric data (calculations can be performed only on numeric columns).
5. For numeric columns only, defining the number of positions to the right of the decimal point.

- You save the setup by saving the application in your private library.
- You create a data file in an application by the following steps after the file format has been set up:
    1. Retrieve from your private library the application containing the data file setup.
    2. Assign a unique row identification number (rowid) to each record in the file.
    3. Access each rowid, and enter (via the keyboard) the data into each column (field) of each record.
    4. Save the new data file in your private library.
- You update a data file in an application by the following steps:
    1. Retrieve the data file from your private library.
    2. Specify or access the rowids of the records to be modified or added to the file.
    3. Access each rowid, and enter (via the keyboard) the update information into the applicable columns of each record being modified or added.
    4. Save the updated data file in your private library.

FUNCTION BEING PERFORMED	COMMAND	PAGE	DESCRIPTION
Set up data file layout and format	SETUP	34	You are prompted to enter (for each column) the column width, the number of places to the right of the decimal point (numeric columns only), and the column header. The setup is stored in the application.
Utilize full-screen edit mode for creating and updating the data file	DATA	42	Any record and any column of the file can be accessed for display by scrolling up, down, left, or right. A record is accessed for update by positioning a cursor in the row number of the record. Program function keys (PF keys) provide expanded editing functions.
Insert a new rowid, change an existing rowid, or obtain a list of rowids and row numbers	ROWIDS	69	You are prompted to enter a rowid. If the rowid does not exist in the file, the rowid is entered as a new record at any desired insertion point. If the rowid exists, it can be changed.
Enter data across selected columns of a record while the record is being viewed	INPUT	48	You are prompted to enter the column numbers to be updated, and the column headers are presented. You can then enter a new rowid or an existing rowid, and enter data under the column headers.
Enter data across selected columns of a record without viewing the record	FASTROW	51	You are prompted to enter the rowid of the record being updated, and the starting column number. You then type in the entry for each column of the record, starting with the starting column number.
Enter data down a selected column for selected records without viewing the column	FASTCOL	54	You are prompted for a column number and a starting rowid. You the type in the entry for each selected record in the column, starting at the starting rowid.

Figure 2. Basic Commands Associated with Task 2

TASK 3: PROCESSING OF DATA FILES

- Processing of the data file is a normal step in preparing a data file for generation of a report (see "Task 4: Setting Up and Generating a Simple Report" on page 14), or for data inquiry and analysis.

- Three types of processing are employed:

  - Arithmetic calculations (across or down) on selected numeric columns and rows (see Figure 3 on page 13). The calculation result is placed in a data file column (across) or row (down) that has been reserved for that purpose.

  - Selection of the records to be included in the report. The selection of records can be based upon comparison of numeric values in selected columns with each other, or comparison of numeric values to any desired constant or constants. Selection can also be based upon a matchup of data in an alphameric column with any desired alphameric word or code.

  - Sorting of the selected records into the order of presentation desired in the report. Records can be stored in ascending or descending order on one or more numeric and alphameric columns.

- Processing can be accomplished by any one (or a combination) of the following methods after the application containing the data file has been retrieved from your private library:

  1. Storing preprocessing instructions as part of a pre-defined report setup. The preprocessing is performed whenever the report is called.

  2. Saving (storing) a program in the application under an assigned number. The preprocessing is performed whenever the program number is called for execution.

  3. Entering processing instructions for immediate execution on the data file. Processing instructions entered in this way are not retained (stored) in the application, and must be reentered each time they are to be performed.

Facts to Remember about Processing

- Processing is usually required before, or as a part of, report generation, because the data file is not normally ready for report generation in the form that is retrieved from the private library.

- Calculation operations modify the data file by storing the calculation results in columns and rows that are reserved for the results. If you want the calculation results to be stored in the data file copy contained in your private library, you must save the workspace.

- Selection operations do not modify the data file. They only affect which records appear in the report.

- Sorting should normally be performed after the calculation and selection operations.

FUNCTION BEING PERFORMED	COMMAND	PAGE	DESCRIPTION
Perform an immediate arithmetic calculation	CALCULATE	93	You enter the calculation statement, and the arithmetic operation is performed immediately. The calculation statement is not stored in the application, but the calculation results are stored in the data file.
Store a calculation program for repeated use	PROGRAM	93	You enter a number and name for the program, and then enter the calculation statement. The statement is stored in the application, but is not executed.
Execute a stored calculation program	COMPUTE	93	You are prompted for the number of the stored calculation program. You enter a valid number. The program then executes, and the calculation results are stored in the data file.
Select records to be included in the report	SELECT	77	You enter a selection statement, and the records that meet the criteria in this statement are selected.
Sort the selected records into a desired sequence	SORT	76	You enter the column or columns to be sorted on, and whether the sort is to be in ascending or descending order on each selected column. The sort column number that produces the largest grouping is specified last, and the sort column that produces the smallest subgrouping is specified first. Only the currently selected records are sorted.

Figure 3. Basic Commands Associated with Task 3

TASK 4: SETTING UP AND GENERATING A SIMPLE REPORT

- To set up a simple report, perform the following steps (see Figure 4 on page 15):

  1. Retrieve from your private library the application containing the data file from which the report is to be derived.

  2. Assign a number to the report setup.

  3. Specify the following report format and layout requirements in the report setup:

     - The report title and any other text to appear below the title line.

     - The columns of the data file that are to appear in the report, and the left-to-right sequence in which the columns are to be presented.

     - The headings to appear over each selected column, and over each group of adjacent columns that are related in some manner.

     - The page dimensions (character width, number of lines per page, top and bottom margins, and line spacing) of the printed report.

     - The spacing from the left margin to the first column, and the spacing between columns.

  4. Specify the preprocessing operations (see Task 3 above) to be included in the report setup.

  5. Save the application (with report setup) in your private library.

- To generate the report after setup, perform the following steps:

  1. Retrieve from your private library the application containing the report setup.

  2. If any preprocessing operations were not included as part of the report setup, execute the remaining preprocessing operations (see Task 3 above).

  3. If a hard-copy printout is to be produced, set up the printer.

  4. Call the number of the setup for the report being generated. The report will be displayed and/or printed.

FUNCTION BEING PERFORMED	COMMAND	PAGE	DESCRIPTION
Set up a predefined simple report	SETREPORTS	110, 126	You are prompted for a report number and name. Then you are prompted for the column numbers in the sequence that they will appear in the report. You also specify any special spacing requirements between columns. Next, you are prompted for formal headers (including any selected lines from the column headers defined for the data file). A report title, and headers over groups of adjacent columns and footnotes, can also be entered. Next, you select the desired print options, including preprocessing, to be included in the setup. The setup is stored in the application for repetitive use.
Set up handling of numeric columns	SETSPECIAL	248	You enter method of handling zero entries, negative numbers, and numbers greater than 999.
Generate a predefined report	REPORTS	167	You are prompted for the number(s) or name(s) of reports whose setups are stored under SETREPORTS. One or more report number(s) can be entered. The report(s) are then produced.
Set up page dimensions	SETPAGE	248	You are presented with a table indicating the current settings for lines per page, line width, top and bottom margins, automatic page numbering, and date stamp. You may change any of these settings.
Set up line spacing	SETSPACE	248	Lets you select the spacing between print lines.
Generate a one-time special report after all preprocessing is completed	LIST	70	You enter the column numbers in the sequence that they are to appear in the report. You also indicate whether you want the column numbers suppressed in the column headers, and any special spacing between columns. A one-line title can also be entered. The report is then generated. The setup is not stored in the application, and must be re-entered each time it is used.

Figure 4. Basic Commands Associated with Task 4

MESSAGE OR PHRASE	EXPLANATION
BE SURE TO)SAVE	Reminds you that the command just executed may have altered information stored in the active workspace, and that the workspace should be saved (by executing) SAVE command) if you want the changes reflected in the copy of the application stored in your private library.
be sure to enter done)save go	Appears at non-APL display terminals only. Purpose is same as BE SURE TO)SAVE. Informs you that you must exit ADRS II conversational mode by executing DONE command, then enter)SAVE to save the application, then GO to return to ADRS II conversational mode.
?adrs?	Appears at non-APL display terminals only. Informs you that you are in ADRS II conversational mode, and the system is ready for you to enter the next ADRS II command. If you want to execute an APL system command, enter DONE in response to the ?adrs? prompt to exit ADRS II conversational mode and enter the desk calculator mode where you can execute APL system commands. You exit desk calculator mode and return to ADRS II conversational mode by executing the GO command. After GO is executed, the ?adrs? prompt appears.
n CHARS WIDE. i LEFT	Indicates the number of characters (n) currently required on each display or print line, and the number of unused characters (i) that remain on the display or print line.
?SET FORM, THEN CR OR ENTER?:	Message is sent when system is ready to produce a report on hard-copy terminal, or on the screen of a display terminal. Allows you to prepare the terminal for receiving the report by adjusting the paper form on a hard-copy printer, or by clearing the screen on a display terminal. When you have prepared the terminal for receiving the report, you strike the ENTER or RETURN key to notify the system that you are ready to receive the report. The report is then generated.
SAVED (time, date)	The message tells you the date and time that the application just loaded into your active workspace was last saved in your private library.
(time, date) wsid	The message informs you of the time and data of a just-completed)SAVE operation on the application that is currently in your active workspace. The)SAVE operation causes an image (copy) of the active workspace to be stored in your private library under its assigned name (wsid).
n OF i SELECTEd	Informs you of the number (n) of records that are currently selected out of the total number (i) of records in the data file.

Figure 5. Commonly Used Messages and Phrases

LIST OF ABBREVIATIONS AND SYMBOLS USED IN TYPED RESPONSE TO PROMPTING MESSAGES

Abbreviation or Symbol	Definitions
a	Add
a	Across (perform a calculation across columns)
b/	Set a report line to blanks
bl	Blank
c	Change
c	Character
c	Compute (execute the COMPUTE) command
c	Center the text over report or over a group of columns
d, del	Delete
d	Descending order (specifies descending order of a sort
d	Down (perform a calculation down a column)
d/	Prefix to data rows
e	Erase
e or ex	Execute (preprocess)
e	Exclude
eq	Equal to (used in selection)
f	Footnote
g	Group Indication
ge	Greater than or equal to
gt	Greater than
h	Help
h/	Column headers
i	Insert
i	Include
k	Prefix to any numeric or nonnumeric constant
k?	Prefix to an execution-time prompt for a numeric value
l	List
l	Left-justify text
le	Less than or equal to
ln	Line number
lt	Less than
me	Prefix to a message that is to be displayed
n	Prefix to a numeric entry
n	Suppress column numbers in headers
n	No response to yes/no question
n/	Print footnotes
ne	Not equal to
p	Prefix for exponent
p(N)	Position text N characters from left margin
q/	Query (display) column print positions
r	Right-justify text
r	Replace
s/	Skip

s(N)	Uniform spacing between columns is N characters
Sb	Skip to bottom of page
t	Prefix to a table number
t	Through (preceded by first row or column number of sequence, and followed by last number in sequence)
t/	Prefix to a text entry when it is to be left-justified
tc/	Prefix to a text entry when it is to be centered
ti	Title identification
to/	Sum the specified rows
u/	Underline
uh/	Underline headers
ut/	Underline totaled columns
v	Prefix to the name of any variable
. (period)	Suppresses the next prompt when placed at the end of a typed entry
, (comma)	Standard entry separator
;	Entry separator used in express mode
:	Entry separator used in express mode
'abc'	Single quotation mark identifies a rowid, a nonnumeric constant, or a name of a variable
?abc?	Question marks identify a variable that is to be replaced by a value in a look-up table
+	Addition
+/	Inclusive addition of rows or columns
-	Subtraction
*	Multiplication
*	One or more asterisks are used to indicate control break level for a group indicator title
/	Division
/	Entry separator
(abc)	Parentheses identify value inside parentheses as non-uniform spacing between columns
(abc)	Parentheses identify value inside parentheses as positions within a column

ADRS II SPECIFICATION DATA

This section contains summaries of relevant specification data for ADRS II. This information is intended as a reference source when using other sections. The following subjects are covered:

ADRS II application specifications
ADRS II data file specifications
ADRS II regular report specifications
ADRS II patterned report specifications
ADRS II graph and bar chart specifications

ADRS II Application Specifications

1. DEFINITION. An application consists of stored information required to produce reports derived from a data file whose format is completely defined by stored setup information contained within the application. An application may include any or all of the following:

    a. Data file format definition, as described in item 1 of "ADRS II Data File Specifications" on page 20. This is a mandatory element of any application.

    b. The complete data file. The file is normally stored within the application. Alternatively, one or more data files can be stored outside the application in shared files storage.

    c. Report setups for regular reports and patterned reports are established by the SETREPORTS command. Any number of report setups can be stored within an application. Each setup is assigned a unique number and name.

    d. Stored computation programs. These programs are stored by the PROGRAM command. Two types are stored: Programs for regular across or down calculations, and programs (across calculations only) executed only at control breaks "Appendix C. ADRS II Report and Graph Specifications" on page 288, item 2d). Each stored program is assigned a unique number.

    e. Business factors. Each business factor has a unique variable name and a value. Business factors are named, entered, changed, or deleted by the BUSFACTS command.

    f. Look-Up Tables. Each table has a unique variable name. The table contains a matrix of values that can be indexed. The tables are set up by the EDIT command, and are indexed by calculation statements.

    g. Job Specifications. These are stored specifications for guided data entry tasks, consolidation, and generation of bar charts and graphs. The job name and specifications are entered and deleted by the JOBNAME command.

    h. ADRS II Command Programs. Commands that are frequently used in conjunction with an application can have their programs stored in the application. The programs are stored by executing the FIX command, and are erased by the FREE command.

    i. System-Defined Variables. These are various variables that are initialized or updated by the ADRS II program without user intervention. Some of these variables can be changed by the user, using the EDIT command

2. APPLICATION NAME. The application must be assigned a unique name (using)WSID command) of no more than 8 characters (no spaces). The first character of the name cannot be a number.

3. PERMANENT STORAGE. The application is stored in the user's private library by executing the)SAVE or STORE ALL command. The STORE ALL command stores the application in shared files storage. An application in application workspace storage is loaded into the active workspace by executing the)LOAD command. An application in shared files storage is loaded into the active workspace by executing the ACTIVATE command after first loading into the active workspace a fresh copy of ADRS2. An application in application workspace storage can be deleted from storage by executing the)DROP

command. An application in shared files storage can be deleted from storage by executing the PURGEFILE command.

4. LIST OF APPLICATIONS IN USER'S PRIVATE LIBRARY. Applications stored in application workspace storage are listed (application names only) by executing the)LIB command.

5. MISCELLANEOUS NAMES ASSIGNED TO VARIABLES, FILES, ETC. Must be assigned a unique name of no more than 8 characters (no spaces). The first character of the name cannot be a number.

ADRS II Data File Specifications

1. FORMAT DEFINITION. Data file format for each column is defined by the SETUP command, and includes the following elements:

   a. Column number (column 0 always contains the rowid) that uniquely identifies the column.

   b. Character width of the column.

   c. Designation of the column as containing numeric data or alphameric data.

   d. For numeric columns only, the number of positions to the right of the decimal point.

   e. Column header for the column.

2. COMPARISON OF NUMERIC AND ALPHAMERIC COLUMNS

   The main features of numeric and alphameric columns are described Figure 6 on page 21.

	SPECIFICATION REQUIREMENTS	
SPECIFICATION	**NUMERIC**	**ALPHAMERIC**
Change the Column Type	Can be changed to alphameric	Cannot be changed to numeric
Entry of Commas	Cannot be entered during data entry	Can be Entered
Type of Data	Numbers, dollar sign, minus sign, and decimal point only, unless SETMIX is on	Any valid character
Use as arguments in Selection Statements	Can be used with any valid relational operator	Only valid relational operators are equal to not equal to, and scan.
Use as arguments in Calculation Statements	Any valid arithmetic calculation can be performed	Cannot be used in arithmetic calculations
Use in Sorting	Can be sorted	Can be sorted
Rowid in Column 0	Col. 0 cannot be numeric	Col. 0 must be alphameric

Figure 6. Comparison of Numeric and Alphameric Columns

3. RECORD ACCESS KEYS. Record access keys provide the means of specifying a row (record) within the file for some operation (such as calculation or data entry). The record access keys are the rowid and the row number:

   a. ROWID. The rowid is the unique row (record) identifier in column 0. A new rowid can be created using the ROWID or FILL command, the INPUT command,or the DATA mode (full-screen edit). A rowid can be changed A rowid can be changed using the ROWID command or the DATA mode. The rowid can be any combination of numbers, letters, and symbols, but it must be treated as alphameric data.

   b. ROW NUMBER. Row numbers are assigned to records (rows) of the data file based upon the physical sequence in which the records are loaded into the active workspace. That is, row number 1 is assigned to the row at the top of the file, row number 2 to the second record in the file, and so on. Sorting operations change the sequence in which records are presented, but do not affect the assignment of row numbers. Inserting or deleting a record changes the physical sequence, causing the rows to be renumbered.

4. COLUMN ACCESS KEY. The column access key is the column number assigned to the column as part of the format definitions described above.

5. DATA FILE COMPONENT ACCESSING. A component equates to a field of a specific record. A field equates to a column of the data file. A row of the data file equates to a record. Consequently, a component of a data file is accessed by specifying the column number and rowid (or row number) in which the component resides. In some cases,

specific character positions within a component (field) can be accessed by specifying the character position(s). Position 1 is the left-most character position within the column.

6. DATA ENTRY. All data entry work (using INPUT, FASTCOL, FASTROW, and DATA commands) is accomplished on individual components which are accessed as described in item 5 above. Data entry can be accomplished across rows or down columns. Data entry can only be performed while the data file is in the active workspace. The sequence in which columns are updated that is, the left-to-right sequence), columns do not have to be updated in column number sequence. Nonnumeric data can be entered into numeric columns by setting SETMIX on. Setting SETMIX to off clears out any nonnumeric data. Commas cannot be entered into numeric columns, but will appear in reports, if specified. Data entered between columns, (that is, not within the specified column widths), is not stored in the data file.

7. CALCULATIONS. Arithmetic calculations (on numeric columns only) can be performed across selected rows on selected column, or down selected columns on selected rows using the CALCULATE and COMPUTE commands. The arguments in calculation statements are the column and/or row numbers (or rowids). The number to the right of the equal sign in a calculation statement is the column number (across calculations) or the row number/rowid (down calculations) in which the calculation result is to be stored.

8. RECORD SELECTION. Selection statements are used to select particular records (rows) from the data file. The arguments in selection statements are column numbers or row numbers/rowids. Selection statements can be invoked by the SELECT command, the LOADFILE command, the ANALYZE command, or the CALCULATE/PROGRAM/COMPUTE commands.

9. SORTING. Records of the data file (currently selected records only) can be sorted into ascending or descending order on one or more columns of the data file, using the SORT command. If desired, the sorting operation is performed on specified character positions within an alphameric column. When two or more columns are specified in a sort operation, sorting is performed in the order that the columns are specified (the last column specified is sorted last). Consequently, the smallest sort grouping should be specified first, and the largest sort grouping should be specified last.

10. SCANNING. Alphameric columns can be scanned for a specific value.

11. OUTPUT COMMANDS. The QUERY, LIST, REPORTS, and PLOT commands provide the means for displaying/printing selected columns of selected records within a data file. The DATA command, although used for inputting data, allows the data file to be displayed on terminals that have the full-screen edit capability.

12. LISTING THE ROWIDS/ROW NUMBERS IN A FILE. The ROWIDS command permits a complete list to be generated of the rowids and corresponding row numbers for all records within the data file.

13. ERASING RECORDS. Records can be selectively erased (in their entirety) from the data file by executing the SELECT command with a selection statement that selects the records to be deleted. Then, the ERASE option of SELECT is invoked. Alternatively, the ERASEROWS command can be used instead of the ERASE option of select.

14. PERMANENT STORAGE. Data files are permanently stored in the user's private library. If the data file is contained within the application workspace (only one data file can be stored per

application), the data file is stored each time the application is saved. If the data file is not stored within the application workspace, it must be stored in shared files storage within the private library by executing the STORE command. In this case, the file must be assigned a unique calling name. A data file stored in shared files is loaded into the active workspace by executing the ACTIVATE command. Data files in shared files storage are deleted by executing the PURGEFILE command.

15. EXTRACTING DATA FROM USER-DEFINED EXTERNAL FILES. Selected columns of selected records within an external file can be extracted for one of the following operations, using the LOADFILE command:

    a. REFRESH. Any existing file in the active workspace is deleted and replaced by the external file data, which is stored in specified columns.

    b. MERGE. The rowids of selected records in the external file are matched with the rowids of the existing data file in the active workspace. When a match occurs, selected columns of the record are updated from the external file. If no match is found, the external file record is added to the file.

    c. INTERSECT. Same as MERGE above, except that extracted records whose rowids do not match up with a rowid in the existing file are not stored.

16. TRANSFERRING DATA TO/FROM OTHER APL-BASED APPLICATIONS. The data file in the active workspace can be transferred to another system, or the data file in another system can be transferred to the active workspace, using the TO/FROM and)COPY commands.

17. RELATED FILES. Related files are data files which are stored in shared files storage under a calling name consisting of the prefix "RF", followed by the column number (of the data file in the active workspace) that ties the two files together. That is, the rowid in the related file correlates to the code in the specified column of the file in the active workspace. The tie between the two files permits data to be extracted from selected columns of the related file for use in titles, formal headers, group indications, or footnotes of reports. This is accomplished by including the code ?RFxCn? within the text of the formal header, group indication, or footnote, where x is the column number tie to the related file, and n is the column number within the related file from which data is to be extracted and placed in the text of the title, formal header, group indication, or footnote (see item 3 of "Appendix C. ADRS II Report and Graph Specifications" on page 288 below).

18. SHIPPING DATA FOR CONSOLIDATION. Selected columns of selected records within a data file can be shipped for consolidation to another user, using the SHIP command.

19. CONSOLIDATION OF DATA. Two or more data files, shipped as described in item 18 above, can be consolidated into a single file containing summary data only, or both summary and details. The summary data consists of total or variance data for each category of detail contained within the files that are consolidated. The detail consists of the records in the data files that were shipped for consolidation. In general each data file that is consolidated contains one detail record for each category of detail being summarized in the summary data.

20. QUICK INFORMAL FORMAT SETUP. The FILL command can be used to generate a data file format consisting of any number of uniform width columns without column headers or column type designations.

Any quantity of sequentially numbered rowids can also be created using FILL.

JOB FLOW

The section "Basic Tasks in Defining and Using Simple Applications" on page 7 provides a task description for creating and using a basic (simple) application.

Complete job flow information for all levels (Basic through Advanced) is provided in "Appendix A. Overall Job Flow" on page 271. This section contains an overall job flow diagram, together with forms and worksheets that provide you with a complete system for:

Job analysis

Job definition

Application configuration control

Users at the intermediate and advanced levels will find, in "Appendix A. Overall Job Flow" on page 271, a complete listing and description of all major tasks/operations that are outside the scope of the basic application described in "Basic Tasks in Defining and Using Simple Applications" on page 7. For each listed task/operation at the intermediate and advanced levels, references are provided to the sections and worksheets that are used to accomplish the task/operation.

Job flow section "Appendix A. Overall Job Flow" on page 271 can be used to facilitate the following activities by end users and data processing specialists/consultants:

- Effective communications between end users and data processing specialists/consultants. The job flow diagram, and the supporting data, forms, and worksheets, provide all of the elements of an effective communications system.

- Adapting existing forms/procedures/policies for use with ADRS II. In this case, the information in "Appendix A. Overall Job Flow" on page 271 can serve as a transitional bridge for customizing internal systems and procedures to fit the particular usage of ADRS II within a particular business organization.

- Access to information within this user's guide. Since this guide is organized into task-oriented sections, a task-oriented accessing scheme is more appropriate than a conventional subject-oriented index or table of contents. The job flow diagram and associated task summaries and lists allow you to define a specific task, and then directly access the section used to accomplish that task. since each section is essentially complete and self-contained, access time can be kept to a bare minimum through the use of "Appendix A. Overall Job Flow" on page 271.

CHAPTER 2. BASIC COMMANDS

SIGN-ON AND SIGN-OFF

This section tells you how to sign on to, and sign off from, the time sharing system.

TASK STEPS

1. Write down the sign-on procedure in effect at your terminal (use a separate line for each typed entry or discrete step):

    1) ____

    2) ____

    3) ____

    4) ____

2. At successful completion of sign-on, proceed to one of the following sections:

    Note: On display terminals that use non-APL keyboards, the first ADRS II command that is entered must be typed in uppercase even when the first ADRS II command is preceded by one or more APL system commands. All subsequent ADRS II commands should be typed lowercase.

    a. If you want to define a new application, proceed to "Defining a New Application."

    b. If you want to load an existing application, proceed to "Loading an Application into the Active Workspace" on page 31.

    c. If you want to drop an existing application, proceed to "Dropping an Application from Your Private Library" on page 33.

3. After all work has been completed and saved, sign-off from the timesharing system by typing **)OFF** (APL and hard-copy terminals) or **)OFF** (non-APL display terminals).

DEFINING A NEW APPLICATION

This section gives you the step-by-step procedure for defining a new application immediately after sign-on, or at any time subsequent to sign-on.

TASK STEPS

1. Load a fresh copy of ADRS II from the public library.

2. If your private library already contains existing ADRS II applications, obtain a listing of the names of those applications, and assign a name to the new application that does not duplicate any of the names already in your private library.

3. Execute the assignment of a name to the new application.

4. Execute a setup operation to define your terminal to the system.

5. Proceed on to the section "Setting Up the Data File Using the SETUP Command" on page 34 to continue the setup for the new application.

COMMAND	DESCRIPTIONS
)LOAD n ADRS2	Loads a fresh copy of ADRS2 (from public library n) into your active workspace.
)LIB	Obtains a listing of the names of the existing applications in your private library.
)WSID wsid	Assigns the name (wsid) to the new application.
SETUP	Allows you to enter the type of terminal and the type of keyboard that you are using.

Figure 7. Command Highlights - Defining Applications

DETAILED PROCEDURE

Note: APL system commands ()LOAD,)LIB, and)WSID) must be typed uppercase (after typing done) on non-APL display terminals, lowercase on APL and hard-copy terminals.

1. Type **)LOAD N ADRS2** where **N** is the number of the public library containing ADRS II. This action loads a fresh copy of ADRS II into your active workspace.

   The system should respond with the following information message:

SAVED (TIME) (DATE)	(indicates time and date (month, day and year) that the copy of ADRS II was last updated in the public library.)

2. Type **)LIB**. A listing is produced of all the currently assigned application names in your private library.

3. Develop a name for the new application, observing the following rules:

   a. The name may not duplicate any name on the list obtained in step 2.

   b. The name cannot include any blank (space) characters. The first character cannot be a number.

   c. The first 8 characters must uniquely define the application.

4. Type **)WSID** then a space, then the new application name developed in step 3.

5. After the ADRS II workspace is loaded, you can obtain a list of the ADRS II commands and system subcommands by typing **COMMANDS**.

6. Type **SETUP** and respond correctly to the information and prompting messages given on the opposite page.

7. Proceed on to the section "Setting Up the Data File Using the SETUP Command" on page 34 to continue the setup for the new application.

MSG. NO.	MESSAGE	DEFINITION	RESPONSE
1	TERMINAL NOW SET FOR mmm MODE	Indicates the initialized mode, mmm, assumed for your terminal, where mmm is either HARDCOPY or DISPLAY	None
2	?ENTER H FOR HARD-COPY, OR D FOR DISPLAY?:	Demand for you to enter the type of terminal that you are using. If you respond with **H** message 5 appears next; if you respond with **D**, message 3 appears next.	Type **H** or **D**
3	DISPLAY TERMINAL DIMENSIONS SET FOR DEPTH dd WIDTH ww	Tells you the initialized number of lines (dd) and characters per line (ww) assumed to be on your terminal's display screen. Message 4 appears next	None. If display dimensions are incorrect, enter correct dimensions in response to message 4.
4	?TO CHANGE THIS SETTING, ENTER 2 NUMBERS?:	Requests any change to the display dimensions given in message 3. Message 5 appears next.	No entry if your display screen dimensions match those given in message 3. If dimensions do not match, type **DD/WW** where dd is the number of lines on your screen and ww is the number of characters on each line.
5	?ENTER A FOR APL KEYBOARD, N FOR NON-APL?:	Demand for you to enter the type of keyboard being used at your terminal. If you respond with **A**, message 8 appears next. If you respond with **N** message 6 appears next.	Type **A** or **N**.

Figure 8 (Part 1 of 2). System Messages Produced During Execution of Setup

MSG. NO.	MESSAGE	DEFINITION	RESPONSE
6	ENTER THE SEMICOLON ON YOUR TERMINAL	Demand for you to strike the ; key on your keyboard Message 7 or 8 appears next.	Strike ;.
7	ENTER THE EXCLAMATION POINT ON YOUR TERMINAL	This message only appears for Display terminals. Demand for you to strike the ! key on your keyboard. Message 8 appears next.	Strike !.
8	TERMINAL SET FOR mmmm. KEYBOARD LAYOUT DEFINED BY THE POSITION OF ';' and '!' NOTE: TERMINAL TYPE AND KEYBOARD TYPE CAN BE CHANGED AT ANY TIME BY INVOKING TERMINAL	Tells you the results of the selections you made in response to messages 2, 5, 6, and 7. Message 9 appears next.	None.
9	?WANT INSTRUCTIONS? Y/N:	Asks if you want instructions for making the data file setup. See page 34	Type Y (yes) N (no) and proceed to page 34.

Figure 8 (Part 2 of 2). System Messages Produced During Execution of Setup

TERMINAL SESSION

You are to create a new application called LEARNER for a display terminal with a non-APL keyboard. Complete the worksheet for this example, and perform the sign-on and initialization procedure in the section "Sign-on and Sign-off" on page 25. Then, perform steps 1 through 5 of the detailed procedure in Figure 8 on page 27, and respond "no" when the prompt ?WANT INSTRUCTIONS? Y/N: appears (step 9 of worksheet).

Verify that the ADRS II dialog displayed or printed at your terminal is identical to that shown in Figure 9 on page 29. If any of your responses are incorrect, repeat until ADRS II dialog is identical. Then, strike the ENTER or RETURN key repeatedly until the message:

```
be sure to )save then enter go
```

appears. Respond to this message by typing)SAVE. The LEARNER application is now created and permanently stored.

```
                                              NOTES

)LOAD n ADRS II                         Replace n with the public
                                        library number containing ADRS
                                        II

SAVED XX.XX.XX XX/XX/XX                 XX will be replaced by actual
                                        time/date

)WSID LEARNER

WAS n ADRS II                           n will be replaced by public
                                        library number

     SETUP

?ENTER H FOR HARDCOPY, OR D FOR DISPLAY?: D

DISPLAY TERMINAL DIMENSIONS SET FOR
DEPTH 24
WIDTH 80
```

Figure 9. ADRS II Dialog for Terminal Session. (Your typed commands and responses are shown in bold type.)

SAVING AN APPLICATION

This section tells you how to save (store in your private library the application in your active workspace, using the KEEP and)SAVE commands.

TASK STEPS

1. If you want to conserve permanent storage in your private library, execute the KEEP command while your terminal is still in the ADRS II conversational mode, before executing)SAVE for the last time during a terminal session.

2. With your terminal in the desk calculator mode, execute the)SAVE command (under TSO, execute the SAVE without the right parenthesis.)

HIGHLIGHTS

- You normally save the application each time one of the following system messages is displayed or printed:

  For APL and Hard-copy Terminals:

  BE SURE TO SAVE.

  For Non-APL Display Terminals

  Be sure to)save

  Then enter go

- During lengthy data entry sessions it is generally advisable to exit from the data entry command being used at least once every 10 or 15 minutes to execute)SAVE. Then, you can resume the data entry task.

This action assures that the work will not be lost in the event of an unscheduled interruption.

-)SAVE does not erase the application from your active workspace; it only stores a copy of the active workspace in your private library.

- KEEP can be optionally executed prior to)SAVE the last time an application is in the active workspace during a terminal session. The command erases from the application approximately 46k bytes of ADRS II system functions just prior to executing)SAVE for the last time. This reduces the permanent storage space required in your private library for the application.

- If KEEP was executed, the erased system functions are restored when the kept application is loaded back into the active workspace by a)LOAD command.

- When)SAVE is executed, a system message is displayed or printed notifying you of the date and time that)SAVE was executed.

HOW TO DECIDE WHETHER TO EXECUTE)SAVE

You are prompted (by BE SURE TO SAVE) that you should save the application in your active workspace whenever a command is executed that could change the content of the data file or the stored setups (data file and report setups, stored programs, variables, etc.).

You should normally respond to the prompt by executing)SAVE (with or without KEEP) unless one of the following conditions exists:

- The entire application is to be stored in shared files storage (using STORE ALL), and is not being stored in application workspace storage.

- The only changes are to the data file, and the data file is stored in shared files storage, not application workspace storage. In this case, the updated file should be stored in shared files storage, using the STORE command.

- All of the changes made to the application while it is in the active workspace are non-permanent, and you do not want these changes to be reflected in the copy of the application contained in your private library.

EXECUTING)SAVE

When you receive a prompt to save the application, proceed as follows:

APL and Hard-copy Terminals

- Type **)SAVE**. The time/date stamp should be printed or displayed, confirming that the save has taken place.

Non-APL Display Terminals

1. In response to ?adrs?: type **DONE**.

2. In response to "be sure to)save then enter go" type **)SAVE**. The time/date stamp should be printed or displayed, confirming that the save has taken place.

3. If you want to execute another ADRS II command, type **GO**. The prompting message ?adrs?: should be printed or displayed, allowing you to enter the next command.

TIME/DATE STAMPS AFTER EXECUTING)SAVE OR)LOAD

Whenever)SAVE is executed, you receive a message notifying you of the time and date (month, day, and year) that the)SAVE was accomplished.

If any other users have access to an application, you should keep a log of the last time you saved the application during a terminal session. Then, when you load the application again during another terminal session, another date stamp is printed or displayed indicating the most recent time/date that the application was saved. If the time and date message at the time you load an application agrees with the time and date that you last saved the application, then you have confirmed that no changes have been made to the application since you last used it. If the application has been saved subsequent to your last use, it may be necessary for you to verify that changes made by others do not affect the work you intend to perform.

CHECKING AND CHANGING THE TERMINAL SETUP

This section tells you how to check and change the terminal setup for an application, using the TERMINAL command.

The terminal setup includes the terminal type (hard-copy or display), the display dimensions (for display terminals only), and the type of keyboard (APL or non-APL).

When you have loaded an application into your active workspace, it may be necessary to check the terminal setup for the application, and to change the setup if it is in disagreement with the setup for your terminal.

TASK STEPS

1. Load the application into your active workspace (see "Loading an Application into the Active Workspace").

2. Type **TERMINAL** command and check the informational messages that are produced. Respond to prompts requesting you to define your terminal. See Figure 8 on page 27 for the system messages and responses except that the message in step 9 will be "BE SURE TO SAVE". In response, type **)SAVE**.

LOADING AN APPLICATION INTO THE ACTIVE WORKSPACE

This work package tells you how to retrieve an application from your private library and load it into your active workspace, using the)LOAD command.

TASK STEPS

1. If required, execute)LIB to obtain a listing of the applications stored in your private library. You obtain the exact name of the application from this list.

2. Enter)LOAD, followed by a space, followed by the exact name (wsid) of the application.

3. Confirm that the load operation has taken place by noting that a system message is returned indicating the last time the application was saved. Check this time and date to determine whether the application was saved since the time and date that it was last saved by you (see "Saving an Application" on page 29).

4. If the application contains an introductory message, follow the instructions given.

5. The message TERMINAL SET TO mmm WITH aaa KEYBOARD AND c AS SEMICOLON will appear, where mmm is DISPLAY OR HARDCOPY, aaa is APL or NON-APL, and c is the character used for a semicolon. If this setup does not match your terminal, refer to the section "Checking and Changing the Terminal Setup" on page 31.

DETAILS

- To execute the load operation on an APL or hard-copy terminal, type **)LOAD WSID** where wsid is the name of the workspace.
- To execute the load operation on a non-APL display terminal:
  1. If your terminal is not already in the desk calculator mode, type **DONE** in response to the next ?adrs?: prompting message.
  2. Type **)LOAD WSID** where wsid is the name of the workspace.
  3. Type **GO** before executing the next ADRS II command.
- The load operation first clears the active workspace. Then, the application whose name was entered is retrieved from your private library and loaded into your active workspace. The copy of the application is still retained in your private library after the load operation is completed.
- If the application was saved using KEEP (see "Using the KEEP Command" on page 209) the deleted system functions are restored to the active workspace during the load operation.

CHANGING THE NAME OF AN APPLICATION

This section tells you how to change the name under which an application is saved in your private library.

This allows you, for instance, to build a new application from an existing application that is to be retained in its unmodified form. You would first load the existing application, modify it as required to create the new application, and then store the new application under a new name, using the)WSID command.

TASK STEPS

1. If the application (and data file) whose name is to be changed is not already in the active workspace, load the application into the active workspace (see "Loading an Application into the Active Workspace" on page 31).

2. Make any changes to the application in the active workspace that are required to define the new application.

3. If required, execute)LIB to obtain a listing of the names of the applications in your private library. Choose a new name that does not duplicate any of the names in your private library (see "Defining a New Application" on page 25 for rules pertaining to the naming of applications).

4. Enter **)WSID WSNAME** where wsname is the application name chosen in step 2. After the command is executed, the information message "WAS oldname" will be displayed or printed, where oldname is the name previously assigned.

5. If the change in name deletes all requirements for the application which is assigned the old name, drop the old application from your private library by executing **)DROP OLDNAME** where oldname is the name of the application to be dropped (deleted) from your private library (see "Dropping an Application from Your Private Library" for details).

NOTES AND COMMENTS

- On non-APL display terminals, you must be in the desk calculator mode to execute)WSID or)LIB. You put the terminal in desk calculator mode by typing **DONE** in response to ?adrs?: Alphabetical characters of)WSID and)LIB are typed uppercase on non-APL display terminals.

- On APL and hard-copy terminals, alphabetical characters of)WSID and)LIB are typed lowercase.

DROPPING AN APPLICATION FROM YOUR PRIVATE LIBRARY

This section tells you how to delete (drop) an application from your private library, using the)DROP command.

TASK STEPS

1. Enter **)DROP WSID**, where wsid is the name of the application being dropped. Execution of the command is confirmed by display or printout of a system message giving the time (hour, minute, and second) and date (month, day, and year) that the)DROP command was executed.

2. Execute **)LIB** and check the resulting listing of applications in your private library to verify that the name of the dropped application no longer appears.

NOTES AND COMMENTS

- On non-APL display terminals, you must be in the desk calculator mode to execute)DROP or)LIB. You put the terminal in desk calculator mode by typing **DONE** in response to ?adrs?: Alphabetical characters of)DROP and)LIB are typed uppercase.

- On APL and hard-copy terminals, alphabetical characters of)DROP and)LIB are typed lowercase.

USING)COPY AND)ERASE COMMANDS WITH VARIABLES

This section tells you how to use the)COPY and)ERASE commands for copying and erasing variable data in the application. All system-defined and user-defined variables in the application can be listed by typing)VARS. The value of any listed variable can be obtained by typing its name.

The)COPY command is used to copy into the application workspace a variable that is contained in another application stored in application workspace storage. The)ERASE command is used to erase from the active workspace any variable. Unless you know what you are doing, you should never erase a system-defined variable, thus)ERASE is intended primarily for erasing user-defined variables.

TASK STEPS

To Copy a Variable from Another Application into the Active Workspace

1. Type **)COPY WSID VARNAME**, where:
    - wsid = the name of the application (stored in application workspace storage) that contains the variable to be copied
    - varname = the assigned name of the variable
2. Execute)SAVE to save the application contained in the active workspace.

To Erase a Variable from the Active Workspace

1. Type **)ERASE VARNAME**, where:
    - varname = the assigned name of the variable
2. Execute)SAVE to save the application contained in the active workspace.

SETTING UP THE DATA FILE USING THE SETUP COMMAND

This section tells you how to set up the data file in an application, using the SETUP command.

When creating a new application, SETUP is invoked to initialize the terminal setup, as described in the section "Defining a New Application" on page 25. Upon completion of the procedures in that section, entries under SETUP continue, as described in this section.

After initial execution of SETUP is completed, you can re-enter SETUP to change or add to the data file setup. (See Figure 10 on page 35.)

TASK STEPS

1. First execution of SETUP in an application is initiated in "Defining a New Application" on page 25. After these procedures are completed, proceed to step 3 below. If SETUP is being re-entered to change the setup proceed to step 2.
2. If you want to change or add to the data file setup specifications, type **SETUP**. Proceed to step 3 below if you are adding new columns. Proceed to step 4 below if you are changing existing column specifications.

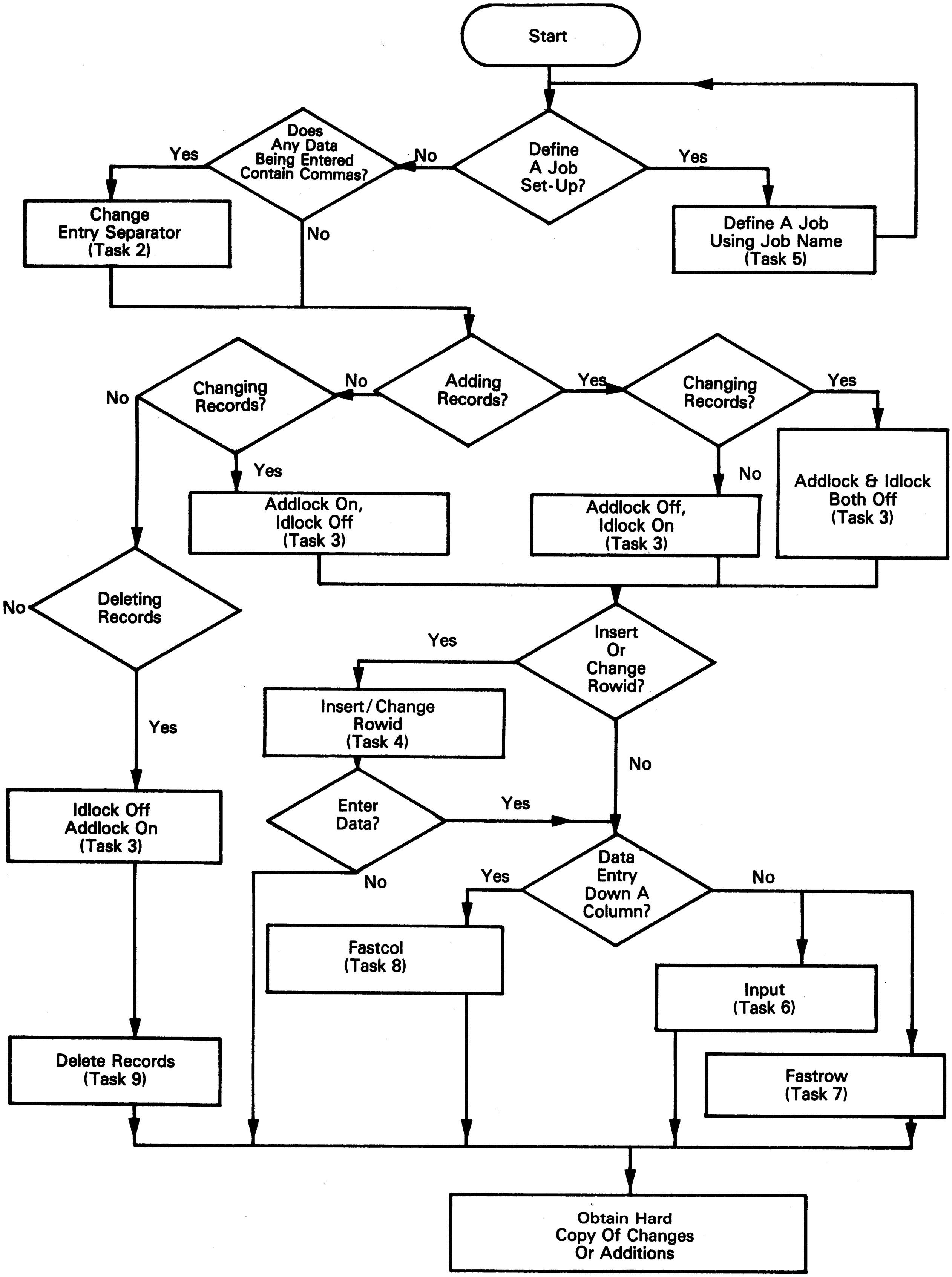

Start
Define A Job Set-Up?
Yes
No
Define A Job Using Job Name (Task 5)
Does Any Data Being Entered Contain Commas?
Yes
No
Change Entry Separator (Task 2)
Adding Records?
No
Yes
Changing Records?
No
Yes
Changing Records?
Yes
No
Addlock On, Idlock Off (Task 3)
Addlock Off, Idlock On (Task 3)
Addlock & Idlock Both Off (Task 3)
Deleting Records
No
Yes
Idlock Off Addlock On (Task 3)
Delete Records (Task 9)
Insert Or Change Rowid?
Yes
No
Insert/Change Rowid (Task 4)
Enter Data?
Yes
No
Data Entry Down A Column?
Yes
No
Fastcol (Task 8)
Input (Task 6)
Fastrow (Task 7)
Obtain Hard Copy Of Changes Or Additions

Figure 10. Job Flow for Data Entry. (Part of task 1 in section)

3. Enter column specifications for each column in the data file in the following format:

   a. NUMERIC COLUMNS

      n d/ column header

      Text of column header. If header contains more than one line, use a comma as a separator between the text for each line. Character width of header lines cannot exceed column width.

      Number of character positions to the right of the decimal point (enter a 0 if none)

      Width of the column (number of characters).

   b. ALPHAMERIC COLUMNS

      n/ column header

      Text of column header. If header contains more than one line, use a comma as a separator between the text for each line. Character width of header lines cannot exceed column width.

      Width of the column (number of characters).

   c. TO DUPLICATE ALL OR A PART OF THE SPECIFICATIONS FOR THE PRECEDING COLUMN IN THE COLUMN WHOSE SPECIFICATIONS ARE CURRENTLY BEING ENTERED

      S/ Width and decimal position (if any) are the same.

      /S Column header is the same.

      S/S Width, decimal position (if any) and column header are all the same.

4. When changing existing column specification, you can delete (drop) the column, change the width/decimal position, or change the column header.

MORE ABOUT SETUP

- Alphameric columns cannot be changed to numeric columns.
- Numeric columns can be changed to alphameric columns.
- When specifying column widths for alphameric and numeric columns, the following must be considered:
  - Column width must be large enough to accommodate the longest line of the column header.
  - For alphameric columns, column width should accommodate the longest entry expected, otherwise, long entries will be truncated.
  - Column 0 (rowid) should not contain more than 7 character positions if data file consolidation (see "Consolidating Shared Files" on page 210)

  - Columns that will be used in folded-pattern-type reports must all have the same width.
  - Character width of numeric columns must account for any dollar signs, parentheses (for negative numbers), decimal points, and commas that will be included in the columns when reports are printed.
  - Numeric columns in which totals or calculation results will appear must have widths that will accommodate the largest expected number of digits (plus dollar signs, parentheses, decimal points, and commas) in the total or result.

- When a data file is used to generate a number of different reports in which the column headers will appear, it is advisable to develop column header names that will be applicable to all reports. These universal header names can be tailored to each report by specifying (in the formal headers) text above the column headers (or above groups of column headers) that make the headers applicable to each report.

- After completing the execution of SETUP, you can check and verify the resulting data file setup using the SETUP option of the QUERY command (see "Querying the Application" on page 62 for details).

- See "Notes and Comments" at the end of this section for using the SETMIX command to allow the entry of nonnumeric data in numeric columns.

- If, after setup, you want to create a set of numerically sequenced rowids in column 0 proceed as follows:

  - Type **FILL**. In response to the first prompt message (?ROWS OR COLUMNS R/C?:), type **R**.
  - In response to the next prompt message (?NUMBER OF ROWS TO ADD?:) type in the total number of records (starting with 001) that you want prenumbered. Then, make blank entries in response to remaining prompts in order to exit FILL.

STEP
NO.

1 PROMPT MESSAGE: ?WANT INSTRUCTIONS? Y/N: (asks if you want instructions for making column specifications entries

YOUR RESPONSE: Type Y if you want the instructions (see information message below), or type N if you don't want instructions. Then, proceed as follows:

a. If this is the initial execution of SETUP in a new application, proceed to step 2.

b. If you are executing SETUP to change or add column specifications, proceed to step 3.

INFORMATION MESSAGE: (The following message appears if you typed Y in response to the ?WANT INSTRUCTIONS? prompt)

```
**What follows is text from the system illustrating***
***examples of columns specifications              ***

SPECIFY EACH COLUMN IN A SINGLE ENTRY.
NONNUMERIC COL:  WIDTH/NAME,MORE NAME....

  ?COL 0?: 4/ITEM,CODE       YOUR ENTRY AFTER THE ":"
  ?COL 1?: 30 PROJECT NAME,AND/OR LOCATION 3 LINE NAME

NUMERIC COL: WIDTH SPACE DECIMAL PLACES/NAME,MORE NAME

  ?COL 2?: 4 0/QUAN          FOUR WIDE, NODECIMALS
  ?COL 3?: 6 2/UNIT,PRICE    SIX WIDE, TWO DECIMALS

USE 'S' FOR 'SAME' ON EITHER SIDE OF /
  ?COL 4?: S/SALE,PRICE      SAME WIDTH/DEC AS LAST
  ?COL 5?: S/S               SAME ALTOGETHER

COLUMN ZERO (ROW IDENTIFIER) MUST BE ALPHA.
ALL OTHERS CAN BE EITHER ALPHA OR NUMERIC.
COLUMN WIDTH MUST BE GT ZERO AND LTE TO PRINT
WIDTH (NOMINALLY 130--SEE...  SETPAGE...TO SET
PRINT WIDTH TO ANOTHER VALUE FOR SPECIAL
PURPOSES)
```

Figure 11 (Part 1 of 3). Using the SETUP Command

STEP NO.		
2	PROMPT MESSAGE:	?COL n?: (n = the next sequential column number, starting from column 0, or the column number you requested in step 4).
	YOUR RESPONSE:	Enter Column specifications (numeric or alphameric) for the column indicated in the message. The prompt message above is then repeated for the next column number. After specifications for last column number have been entered, make a blank entry, and proceed to step 4.
3	INFORMATION MESSAGE:	c COLS AND r ROWS (c = existing number of columns, r = existing number of rows)
	PROMPT MESSAGE:	?CHANGING THE DATA BASE? Y/N: If you want to change or add column specifications, type Y. If no changes to the setup are required, type N. Proceed to step 4.
4	PROMPT MESSAGE:	?ANY COL NO.?:
	YOUR RESPONSE:	If you want to change specifications for an existing column, or add specifications for a new column, type in the number of the column. The next step is determined by whether you typed the number of a new or an existing column, as follows: a. If you typed the number of a new column, proceed to step 2. b. If you typed the number of an existing column, proceed to step 5. If there are no more columns requiring entry of specifications, make a blank entry and proceed to step 8.
5	INFORMATION MESSAGE:	(information message indicates current width and decimal setting, and current, column header for the column whose number was specified in step 4)

Figure 11 (Part 2 of 3). Using the SETUP command

STEP NO.		
	PROMPT MESSAGE:	?DROP OR WIDTH OR NAME D/W/N? Requests you to enter **D** (to drop the column), **W** (to change column width and/or decimal position), or **N** (to change the column header). To change the column header and the width/decimal position, type, **W N**.
	YOUR RESPONSE:	Type **D**. The information message COL n DELETED appears, where n = the column number typed in step 4 OR Type **W** and proceed to step 6 OR Type **N** and proceed to step 7.
6	PROMPT MESSAGE:	NEW WIDTH AND DEC NO.S?: (appears if you typed **W** in step 5) **Note:** If you change a numeric column to a nonnumeric column, it cannot be changed back to a numeric column again.
	YOUR RESPONSE:	Type column width, followed by a space and (for numeric columns only) the number of positions to the right of the decimal place. If changing a numeric column to an alphameric column, enter only the width. In this case, the following prompt message appears: ?VERIFY CHANGING NUMERIC TO NONNUMERIC? Y/N: Type **Y** to make the change. Return to step 4.
	INFORMATION MESSAGE:	NAME NOW IS......... indicates the current column header. Appears if you typed **N** in step 5.
	PROMPT MESSAGE:	?ENTER NEW NAME IF NEEDED?:
	YOUR RESPONSE:	Type in the new name of the column header (blank entry if no change). If you enter a new name, the information message above is repeated, but it now indicates the new name you just entered. The prompt message is then repeated. Make a blank entry if there is no change to the column header. Return to step 4.
8	INFORMATION MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute **)SAVE** to save the new or changed setup in the application.

Figure 11 (Part 3 of 3). Using the SETUP command

NOTES AND COMMENTS ON SETUP PROCEDURES

1. Alternative Method of Data-File Setup, Using FILL Command

   As an alternative to using the SETUP command to set up a data file, the FILL command can be used to create a quick-and-dirty setup containing uniform-width alphameric columns without headers, and prenumbered sequential rowids. Here is how to create a setup using FILL.

   a. Perform the steps in "Defining a New Application" on page 25 to define a new application.

   b. Type **FILL**.

   c. In response to the first prompt message (?ROWIDS OR COLUMNS R/C?:) type **C**.

   d. In response to the next prompt (?NUMBER OF COLS TO ADD?:) type in the number of columns (excluding column 0) in the file.

   e. In response to the ?COL WIDTH?: prompt, type in the uniform width of the column.

   f. If you want to create sequentially numbered rowids, respond to the next occurrence of ?ROWS OR COLUMNS R/C?: prompt by typing **R**. Then, respond to the ?NUMBER OF ROWS TO ADD?: prompt by entering the anticipated total number of records (rows) in the file. Exit from FILL by making blank entries for the remaining prompts.

   g. Create column headers as part of the formal headers during execution of SETREPORTS (see task 3 of "Storing Report Setups Using SETREPORTS" on page 110).

2. Using the SETMIX Command

   Turning SETMIX on allows you to enter nonnumeric data in numeric columns. Turning SETMIX off, cleans out any nonnumeric data that was entered while SETMIX was on.

   To turn SETMIX on, proceed as follows:

   a. Type **SETMIX**.

   b. The information message NUMERIC COLUMNS WILL NOW ACCEPT NONNUMERIC DATA appears, telling you that SETMIX is on.

   c. With SETMIX on, you cannot enter nonnumeric data into a numeric column via a calculation or program statement.

   To turn SETMIX off, proceed as follows:

   a. Type **SETMIX**. The information message MIX ON. n COLS HAVE NONNUMERIC DATA appears, where n is the number of different columns where nonnumeric data was entered while SETMIX was on.

   b. The prompt message ?VERIFY INTENT TO SET MIX OFF AND CLEAN HOUSE? Y/N: appears. Type **Y** in response to this prompt if you want to turn SETMIX off and clean out all nonnumeric data in numeric columns.

   c. The prompt message ?DELETE ANY DOLLAR SIGNS ALSO? Y/N appears. Type **Y** if you want dollar signs deleted from numeric columns.

d. The information message CLEAN HOUSE appears, indicating that nonnumeric data (other than dollar signs if you answered no in step 3) has been cleaned out of all numeric columns.

USING DATA AND SCROLL MODES WITH FULL-SCREEN EDIT

This section tells you how to make data entries in the DATA mode, and how to use the SCROLL mode during generation of reports.

The DATA mode is invoked by executing the DATA command. Once invoked, subcommands are executed to perform specific data entry and information retrieval functions. The subcommands are executed either by typing in their names, or (in most cases) by striking the appropriate program function key (PF key) on the keyboard.

The SCROLL mode is automatically invoked whenever a QUERY, LIST, REPORTS, or PLOT command is executed, and permits you to use the information retrieval features of the DATA mode for accessing displayed report data.

TASK STEPS

For DATA Mode:

1. Type **DATA**. The top 23 rows of the data file columns that can fully fit within the 80-character-wide display appear on the screen, starting from column 0 at the left, and proceeding from left-to-right across the screen in numerical order.

2. Execute the appropriate information retrieval subcommands (Figure 12 on page 43) to obtain a display of the portion of the file where you want to make a data entry. Then, execute the appropriate data entry and edit subcommands to accomplish the data entries. You can obtain a copy of displayed data by executing the COPY subcommand.

3. Terminate DATA mode by executing the END subcommand.

For SCROLL Mode:

1. Initiate SCROLL mode by executing the QUERY, LIST, REPORTS, or PLOT command.

2. Execute the appropriate information retrieval subcommands to obtain a display of the portion of the report in which you are interested. You can obtain a copy of the displayed data by executing the COPY subcommand.

3. You can obtain a hard-copy of the report by executing the OFFLINE subcommand. The report is produced by your local hard-copy printer.

4. Terminate SCROLL mode by executing the END subcommand.

Subcommand Category	Subcommands Included in the Category
INFORMATION RETRIEVAL	TOP, BOTTOM, BACKWARD, FORWARD, LEFT, RIGHT, UP, DOWN, SETCOLS, SELECT, LOCATE
DATA ENTRY AND EDIT	INSERT, DELETE, UPDATE, CHANGE, RENUMBER
MISCELLANEOUS	HELP, HOME, COPY, END, EXEC, OFFLINE

Figure 12. Data and SCROLL Modes with Full-Screen Edit - Subcommand Highlights

MORE ABOUT THE DATA MODE

- Selection. Execution of the SELECT or SEL command before entry into DATA mode, or while DATA mode is invoked, causes only the records selected by the selection statement to be displayed. If you wish to select the entire data base, execute the SALL command before executing the DATA command.

- Sort Sequence. The selected records (rows) of the data file are always displayed in sorted sequence. If you want the records to appear in ascending or descending rowid sequence, execute the SORT command to perform a sort on column 0 (rowid).

- Initial Entry Into Data Mode. When initially entering DATA mode, the top left side of the data file is displayed, with columns in ascending numerical order, starting with column 0. The top of the file is defined as the first selected record in the sort sequence.

- Changing the Sequence of Columns Displayed Upon Initial Entry into DATA Mode. As described above, columns are displayed in ascending numerical order when the DATA mode is initially entered. The sequence of columns displayed can be altered by creating a DATACOLS system variable using the EDIT command (see "General-Purpose Editing, Using the Edit Command" on page 102). DATACOLS would contain a listing of the column numbers in the sequence that you want them to initially appear (space between each column number).

- Prompt for Next Subcommand. After the currently entered subcommand is executed, the prompt message ?ENTER SUBCOMMAND OR HELP?: appears. Typing HELP (or striking the PF1 key) provides a list of the DATA mode subcommands.

- Subcommands That Can Be Executed by Striking Program Function Keys (PF Keys):

Subcommand	PF Key
HELP	1
TOP	2
BOTTOM	3
INSERT	4
DELETE	5
HOME	6
BACKWARD	7
FORWARD	8
COPY	9
LOCATE	10
SELECT	11
END	12

- Data or subcommand entry occurs at the location on the screen. The HOME subcommand positions the cursor at the start of the command line (line 24) on the screen for entry of subcommands. Cursor positioning keys (up, down, forward, and back) are provided to move the cursor to any desired position on the screen. When data entries are being typed, the cursor moves right one position for each character typed. Execution of any information retrieval subcommand except LOCATE positions the cursor at the beginning of a line on the screen. Execution of LOCATE positions the cursor at the start of the text or numeric data that was located.

- Execution of any data entry/edit subcommand requires that IDLOCK be set to off (see the section "Protecting Data File Using ADDLOCK and IDLOCK" on page 246). Execution of INSERT requires that IDLOCK and ADDLOCK both be set to off.

- Execution of the INSERT, DELETE, and RENUMBER subcommands must be preceded by execution of the UPDATE subcommand without specifying any columns (all-column update).

- Printing the Screen. The currently displayed rows and columns are printed by executing the COPY subcommand (or by striking PF 9). The hard-copy printout is produced by a 3800-series local printer. If the printer is not online, then exit the data mode and execute the PRINTER command and the LIST command to get a hardcopy of the selected records.

- Printing an Entire Report. When in the SCROLL mode, you can print an entire report by executing the OFFLINE command.

SUBCOMMAND DETAILS

Information Retrieval Subcommands

1. SCROLL TO TOP/BOTTOM OF DATA FILE SUBCOMMANDS:

TOP	Scroll up to the top of the file, and display the top 23 rows.
BOTTOM	Scroll down to the bottom of the file, and display the bottom 23 rows.

2. SCROLL n SCREENS SUBCOMMANDS (n x 23 = number of records between top line of display before subcommand execution and top line of display after execution):

BACKWARD n	Scroll back toward top of file n screens.
FORWARD n	Scroll ahead toward bottom of file n screens.

3. SCROLL n RECORDS SUBCOMMANDS (n = number of records between top line of display before subcommand execution and top line of display after execution):

UP n	Scroll toward top of file n records.
DOWN n	Scroll right n columns away from column 0.

4. SCROLL n COLUMNS SUBCOMMANDS (n = number of columns between left-most column before subcommand execution and left-most column after execution):

Left n	Scroll left n columns toward column 0.
Right n	Scroll right n columns away from column 0.

5. DISPLAY SELECTED COLUMNS SUBCOMMAND (n = the list of column numbers to be displayed):

SETCOLS n	List column numbers in the sequence you want them to appear, with a space between each column number. Use t between first and last column numbers of a sequentially numbered set of columns to be displayed. **Note:** Column 0 (rowid) is always the left-most displayed column, even if it is not listed.

6. DISPLAY SELECTED RECORDS SUBCOMMAND (n = row numbers or rowids or records to be displayed):

SELECT n	Provide a space between each entered row number or rowid. It rowids are used, enclose each rowid with single quotation marks. Use t between first and last row numbers or rowids to select a sequential set of records. **Note:** Only row numbers or rowids can be specified under this subcommand. If you want to select records based upon a selection statement, use the ADRS II SELECT command.

7. GLOBAL SEARCH SUBCOMMAND:

LOCATE,text,col. No.s	Replace "text" with the word or numeric value or text segment to be located. Replace 'col.No.s' with the column number(s) to be searched. If you specify more than one column number, enter a space between each column number. The search is executed through the file, starting with the record currently displayed on the top line, and proceeding through the bottom of the file. At completion, the first record found that contains "text" in the specified column(s) is displayed on the top line.

Data-Entry and Edit Subcommands (IDLOCK Must Be Set to Off)

UPDATE col No.s	Enables update in displayed rows of displayed columns that are listed (replace 'col No.s' with the column numbers to be updated). Displayed columns that are not listed are skipped over during update. Use a space between each listed column number. Use "t" between first and last column numbers of a sequentially numbered set of columns to be updated. To accomplish an all-column update, do not list any columns after typing UPDATE.

INSERT	Inserts a blank row below the row where the cursor is currently located. Requires that all-column update be selected prior to execution, and that IDLOCK and ADDLOCk both be set to off. A new record can be created in the blank row.
DELETE	Deletes the record in which the cursor is located. Requires that all-column update be selected prior to execution.
Renumber	Renumbers the selected and sorted records in the file with sequentially numbered rowids in column 0. Renumbering starts at the selected record at the top of the file, which is numbered 001.
CHANGE,oldtext,newtext,col No.s	Executes a global search and correction through the specified column numbers of the selected records in the file. Replace "oldtext" with the word or phrase that is to be changed. Replace "newtext" with the word or phrase that is to be used to replace the old word or phrase. Replace column numbers with the number(s) of the column in which the change is to be made (use a space between column numbers).

Miscellaneous Subcommands

HELP	Provides a list of the subcommands that can be executed in the DATA mode.
HOME	Positions the cursor at the start of the command line to allow entry of the next subcommand.
COPY	Causes local printer to print a copy of the current contents of the screen.
END	Terminates the DATA mode.
EXEC adrs2 cmd	Typing EXEC followed by any appropriate ADRS II command causes that command to be executed without exiting from the DATA mode. Replace "adrs2 cmd" with the name of the command to be executed. You can review any effect of ADRS II command execution upon the data file by using the information retrieval commands.
OFFLINE	Requests the printer to produce a hard-copy of the report being displayed in the SCROLL mode.

DETAILED DATA ENTRY PROCEDURE

1. If you are going to update or delete existing records, assure that IDLOCK is off. If you are going to insert new records, assure that IDLOCK and ADDLOCK are both off. See the section "Protecting Data File Using ADDLOCK and IDLOCK" on page 246 for details.

2. If you want to use a selection statement to select records from the file, execute the ADRS II SELECT command with the appropriate selection statement (see the section "Selection" on page 77 for details).

3. Type **DATA**.

4. Locate the record(s) of interest using the TOP, BOTTOM, FORWARD, BACKWARD, UP, DOWN, SELECT, or LOCATE subcommand, as appropriate.

5. Locate the column(s) of interest using the LEFT, RIGHT, or SETCOLS subcommand, as appropriate. If you want the selected columns to appear out of numerical sequence, use SETCOLS, and list the columns in the order you want them to appear.

6. To insert a new record, proceed as follows:

   a. Type **UPDATE**.

   b. Position the cursor in the existing record that is above the insertion point.

   c. Type **INSERT**.

   d. Enter the new rowid in column 0, and type in any additional entries in other columns of the new record.

7. To delete an existing record, proceed as follows:

   a. Type **UPDATE**.

   b. Position cursor in the record to be deleted.

   c. Type **DELETE**.

8. To make new entries or changes in an existing record, proceed as follows:

   a. Type **UPDATE**, followed by the column numbers to be updated.

   b. Position the cursor in the record to be updated.

   c. Position cursor in each column of the record that is to be updated, and type in the new entry or correction.

9. To make global change, execute CHANGE, and specify the text that is to be changed, followed by the new (replacement) text, followed by the column numbers to be changed. Use commas as separators between CHANGE and the old text, between the old text and the new text, and between the new text and the first column number.

   Note: If the old text or new text contains a comma, use SEPARATORS command to change the separator from a comma to some other symbol that is not used in old text or new text.

10. To renumber the rowids in column 10 of the selected records, proceed as follows:

    a. Type **UPDATE**.

    b. Type **RENUMBER**.

11. To execute another ADRS II command while the DATA mode, type **EXEC** followed by a space and the name of the ADRS II command to be executed.

12. To exit from the DATA mode, type **END**.

DATA ENTRY USING INPUT COMMAND

This task tells you how to make data entries (guided or unguided) using the INPUT command. Guided data entry tasks utilize job setups entered and stored under the JOBNAME command (see "Defining a Guided Data-Entry Job Using JOBNAME" on page 57). Guided data entry tasks specify the column numbers to be updated, and (optionally), the rowids to be updated.

Guided data entry tasks that do not specify rowids, and unguided data entry tasks, require you to enter the rowid for each record being updated.

For guided data entry tasks, you enter the job name under the INPUT command, with or without a verify (/v) suffix to the job name. If you enter the verify suffix (jobname/v), the entire contents of each selected record are printed out or displayed for verification. Then, column 0 and (optionally) a prompting column are printed or displayed and the terminal waits for you to make data entries in the columns included in the job setup. If you do not enter the verify suffix to the job name, only column 0 and the optional prompting column are printed or displayed.

The prompting column, if any, cannot be updated. For guided data entry tasks that do not specify rowids, and for unguided data entry tasks, you can view the contents of the record by entering only the rowid.

TASK STEPS

1. Type **input**, and respond to the prompt by entering either a job name (with or without verify suffix) or the column numbers to be included, in the sequence you want them to appear.
2. If the guided data entry does not specify rowids, or if you are performing an unguided data entry task, you must type in the rowid of each record to be updated. To verify the contents of a record, enter only the rowid. The record contents are displayed or printed.
3. To update a record following the entry or appearance of the rowid in column 0, use either of the following methods:
   - Use space bar to position cursor or carriage under each column, and type in the entries. You can space over columns without affecting the data content.
   - Type in the column entries in a string, with a separator between each column entry. Multiple separators let you skip one column for each extra separator that is entered.

More about the INPUT Command

- INPUT is the quickest way to enter data when using the EXPRESS mode.
- If you choose to make your column entries in a string with a separator between each column entry:
  - You can skip over columns by entering extra space separators (one extra separator for each column being skipped).
  - If the data being entered contains commas, you must change the separator to another character, using the SEPARATORS command (see task 2).

- If you choose to make your entries under the column headers, you can skip across columns (without affecting their contents) using the space bar.

- For guided data entry tasks, typing **/V** following the name of the guided data entry job causes the contents of each selected record to be printed or displayed for verification. Then, the rowid in column 0 and an optional prompting column are printed, and you make your column entries after the rowid or prompting column.

- For unguided data entry, list the column numbers in the sequence that you want to update the columns, using a space between each column number. If you want a sequential set of column numbers to appear in numerical sequence, use **T** (for through) between the first and last column number of the sequential set. **EXAMPLE:** 1t8 = column numbers 1 through 8, in sequence.

- You cannot create new records using guided data entry. New records can be created using unguided data entry. In this case, the new record is created when you type a rowid that does not presently exist in the data file.

- The column headers of the selected columns are reprinted or redisplayed at any point by entering **HDRS** while the cursor or carriage is in column 0.

- To enter nonnumeric data in numeric columns, SETMIX must be on (see "Setting Up the Data File Using the SETUP Command" on page 34 for details).

- Data entries are automatically aligned, regardless of where you type them under the column headers:

  - Data entries in alphameric columns are justified left. You must enter rowids in column 0 with the cursor or carriage positioned at the first column position in column 0.

  - Data entries in numeric columns are justified right:

- To delete the entire contents of a column:

  - Type a / to delete the contents of an alphameric column.

  - Type a 0 to delete the contents of a numeric column.

STEP NO.		
1	Type **INPUT**	Proceed to step 2.
2	PROMPT MESSAGE:	COL NO.S OR JOB NAME?:
	YOUR RESPONSE:	For guided data entry, type in a job name, with or without the **/V** verify suffix. Proceed to step 3. For unguided data entry, type in the column numbers (use space as separator between column No.s, **T** (for through) between the first and last col. No.s of a sequential set. Proceed to step 3.
	MESSAGE:	Column headers are printed or displayed. If guided data entry job is being used and the job setup includes the rowids to be updated, the first rowid appears (with or without a prompting column).
3		If you are performing a guided data entry job in which the rowids are specified, go to step 5. If the guided data entry job does not specify the rowids, or if the data entry is unguided, proceed to step 4.
4		To view the record contents, type in the rowid while the cursor or carriage is in the first character position of column 0. Then, strike the ENTER or RETURN key. The contents of the record are displayed. If no change is required, proceed to step 6. To change the record, type in the rowid while the cursor or carriage is in the first character position of column 0, and proceed to step 5.

Figure 13 (Part 1 of 2). Data Entry - Detailed Procedure

STEP NO.	
5	Type in the column entries for the record whose rowid appears in column 0 of the current line being displayed or printed. You can type in your column entries in either two ways: • Use the space bar to position the carriage or cursor under the column header dashed lines for each column being updated. You can skip over columns using the space bar without affecting the column contents. OR • Type in your column entries for the record in a string, with a separator between each column entry (multiple separators let you skip one column for each extra separator that is entered).
6	Repeat steps 3 through 5 for each record being entered or updated. After the last record is completed, proceed to step 7 (unguided, or guided without rowids) or step 8 (guided with rowids specified).
7	While the cursor or carriage is in column 0, strike the ENTER RETURN key.
8	Respond to the BE SURE TO)SAVE message by executing)SAVE.

Figure 13 (Part 2 of 2). Data Entry - Detailed Procedure

DATA ENTRY USING FASTROW

This task tells you how to make data entries (guided or unguided) using the FASTROW command. Guided data entry tasks utilize job setups (column numbers to be updated) stored under the JOBNAME command (see the section "Defining a Guided Data-Entry Job Using JOBNAME" on page 57)

Guided and unguided data entry both require you to specify the rowid of each record to be updated, and the starting column number (the first column in the record requiring update). For guided data entry only, the selected columns, starting with the starting column number, can be updated. For unguided data entry, all data file columns whose numbers are equal to or greater than the starting column number are available for update.

Task Steps

1. Type **FASTROW**. Respond to the ?JOB NAME?: prompt by making a blank entry (unguided), or by typing in the name of the job (guided).

2. Enter the rowid of a record to be updated, and the number of the first column of the record requiring update. Respond to the r FROM COL c prompt (r = the rowid, c = the starting column number of the next column in the sequence) by typing in the entries for each

column requiring update. Use the separator between column entries. Multiple separators allow you to skip one column for each extra separator that is needed.

3. Repeat step 2 for all records requiring update. Exit from FASTROW by making a blank entry to the prompt for a rowid, and execute)SAVE to save the updated records in the data file.

Highlights

- You can create new records with FASTROW.
- If the data being entered contains commas, change the separator (see task 2).
- SETMIX must be on (see the section "Setting Up the Data File Using the SETUP Command" on page 34) to enter nonnumeric data in numeric columns.
- Alphameric column entries are automatically justified left, but you can indent data by entering spaces before the date. Data entries in numeric columns are automatically justified right.
- Delete an entire row value in an alphameric column by typing the slash (/) character. Delete an entire row value in a numeric column by typing the 0 character.
- You can obtain a list of the new entries for the row being updated by typing **LIST** in response to the ?r FROM COLc?: prompt.

STEP NO.		
1	Type **FASTROW**	
2	PROMPT MESSAGE:	?JOB NAME?:
	YOUR RESPONSE:	If using guided date entry job, type in the job name. If not using guided data entry, make a blank entry. Proceed to step 3.
3	PROMPT MESSAGE:	?ANY ROWID?:
	YOUR RESPONSE:	If no more rowids must be updated, make a blank entry. Proceed to step 7. To update or create a record, type in the rowid. Proceed to step 4.
4	PROMPT MESSAGE:	?STARTING COL NO.?:
	YOUR RESPONSE:	Type in the number of the first column requiring data entry for the record (column must be among those in the job setup if guided data entry is being performed). Proceed to step 5.
5	PROMPT MESSAGE:	?r FROM COL c?: (r = rowid typed in step 3, c = column number typed in step 4, or next column number to be updated)
	YOUR RESPONSE:	If you want a list of the row entries starting from the starting column number, type **LIST**. The list is produced, and the prompt is repeated. Type in one or more column entries, separating column entries with a separator (multiple separators let you skip one column for each extra separator entered). Proceed to step 6.

Figure 14 (Part 1 of 2). Data Entry Using FASTROW - Procedure

STEP NO.		
5 (cont)		For unguided data entry, the column entries must be typed in column number sequence, starting with the column number indicated in the prompt. For guided data entry, the column entries must be typed in the sequence that the columns are specified in the job setup, starting from the column number indicated in the prompt.
6		If you did not type in entries for all of the available columns through the end of the record, repeat step 5. If you typed in all of the column entries, r FINISHED appears (r = the rowid typed in step 3). Go back to step 3.
7	INFORMATION MESSAGE:	DONE. ALL n RECORDS SELECTED (n = total No, of records in the data file)
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE

Figure 14 (Part 2 of 2). Data Entry Using FASTROW - Procedure

DATA ENTRY USING FASTCOL

This task tells you how to perform unguided data entry using the FASTCOL command.

Use FASTCOL when you want to make data entries down a column of selected rows. The entries must be made in the same sequence as the selected rows are sorted, or in the rowid sequence that you specify under the FASTCOL command.

FASTCOL is sensitive to selection. That is, only the currently selected records (see the section "Selection" on page 77) can be updated, in their currently selected sequence. You can, however, create new records and override the current record selections by listing rowids under column 0.

Task Steps

1. If you want to select the records to be updated using the SELECT command, execute SELECT and enter the appropriate selection statement. Then, execute SORT to sort the selected records in the sequence that you want to update them down the columns.

2. Type **FASTCOL**. If you want to override the current selections so as to create new records, respond to the first request for a column number by specifying column 0, and then respond to the request for rowids by listing the rowids, of the new records in the sequence you want to create.

3. Specify the number of a column to be updated, then specify a starting rowid (the rowid of the first record in the column that needs to be updated). Respond to the COL c FROM r pronpts (c =

column number entered in step 2, r = first or next rowid to be updated) by entering the row values down the column. Separate each row value with the currently selected separator. Multiple separators allow you skip one row for each extra separator that is entered.

Highlights

- You can create new records with FASTCOL (rowids must be listed under column 0).
- If data being entered contains commas, change the separator (task 2).
- SETMIX must be on (see the section "Setting Up the Data File Using the SETUP Command" on page 34) to enter nonnumeric data in numeric columns.
- Alphameric column entries are automatically justified left, but you can indent data by entering spaces before the data. Data entries in numeric columns are automatically justified right.
- Delete an entire row value in an alphameric column by typing the slash (/) character. Delete an entire row value in a numeric column by typing the 0 character.
- You can obtain a list of the selected rowids available for update by selecting column 0 and typing **LIST**.
- You can obtain a list of the column entries in a selected column by typing **LIST** in response to the ?COL c FROM r?:.

STEP NO.		
1		To select a subset of records for updating the SELECT command, refer to the section "Selection" on page 77, and execute SELECT to enter a selection statement that selects the records to be updated. Execute SORT (see "Sorting" on page 76) to sort the selected records into the desired sequence for updating. Proceed to step 2.
2		Type **FASTCOL**. Proceed to step 3 if you want a listing of the rowids for the records selected in step 1. If you don't require a list of selected records, and are not creating new records, proceed to step 6. If you are creating new records, proceed to step 5.
3	PROMPT MESSAGE:	?ANY COL NO.?:
	YOUR RESPONSE:	Type 0
4	PROMPT MESSAGE:	?MORE ROWIDS?:
	YOUR RESPONSE:	Type list. The list of rowids for the selected records is produced. Proceed to step 6.
5	PROMPT MESSAGE:	?ANY COL NO.?:
	YOUR RESPONSE:	Type 0.
	PROMPT MESSAGE:	?MORE ROWIDS?
	YOUR RESPONSE:	Type in (in the sequence that you want to create them) the rowids of the new records that you are going to create. Use a separator between rowids. Make a blank entry to the prompt after all rowids are entered. Proceed to step 6.
6	PROMPT MESSAGE:	?ANY COL NO.?
	YOUR RESPONSE:	Type in the column number of a column to be updated. If there are no more columns to be updated, make a blank entry, and proceed to step 10. Otherwise, proceed to step 7.

Figure 15 (Part 1 of 2). Data Entry Using FASTCOL - Procedure

STEP NO.		
7	PROMPT MESSAGE:	?STARTING ROWID?
	YOUR RESPONSE:	Type in the rowid of the first record (in the sequence established in step 1 or 5) to be updated. Proceed to step 8.
8	PROMPT MESSAGE:	?COL c FROM r?: (c = column number entered in step 6, r = rowid typed in step 7, or next rowid to be updated)
	YOUR RESPONSE:	If you want a listing of the existing column entries for the selected records, type **LIST**. The list is produced and the prompt is repeated.
	YOUR RESPONSE:	Type in the entries for one or more rows, using a separator between each row entry (multiple separators allow you to skip one row for each extra separator entered. Entries must be typed in the sequence established in step 1 or step 5. Proceed to step 9.
9		If you did not type entries for all of the selected rowids, repeat step 8. If you typed in entries for all rowids, END OF COL OR SELECTED ROWS appears. Proceed to step 6 to update another column, or to exit FASTCOL.
10	INFORMATION MESSAGE:	n OF i SELECTED (n = the number of rowids actually updated, i = the total number of records that were selected in step 1 or 4)
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE

Figure 15 (Part 2 of 2). Data Entry Using FASTCOL - Procedure

USING DATACHECK

DATACHECK is a command that will check the data base for damage caused by interrupted commands (such as INPUT) and will automatically correct conditions that can be corrected. The user is informed if the data base appears to be satisfactory, or whether it should be replaced from system back-up tapes.

DEFINING A GUIDED DATA-ENTRY JOB USING JOBNAME

This task tells you how to use the JOBNAME command to set up and store in the application a guided data-entry job for use with either the INPUT or FASTROW command. Refer to tasks 6 and 7 in this section for executing jobs that are set up in this task.

- A job setup for FASTROW specifies column numbers only.

- A job setup for INPUT can specify column number only or column numbers and rows.

Task Steps

1. Type **JOBNAME**.

2. Type in the name of the job being set up.

3. Type in the code for FASTROW (1) or INPUT (2) to indicate which of these commands is to be used to execute the job.

4. List the data file column numbers you want to include in the job setup, in the sequence you want them to appear.

   Note: For INPUT command job setups only. Jobs being set up for use with the INPUT command must specify column 0 (rowid) as the first column. The column number you list after column 0 can be used as a prompting column, if desired. If you elect to use this column as a prompting column, you will not be able to make data entries in that column.

5. For INPUT command job setups, only, you can elect to list the row numbers or rowids of the records to be included in the job setup.

6. To delete a job setup, type **JOBNAME**, and type in the name of the job to be deleted. The job deletion procedure is included in this task.

STEP NO.		
1	Type **JOBNAME**	Proceed to step 2.
2	PROMPT MESSAGE:	?LIST n EXISTING JNS?: (n indicates the total number of jobnames presently defined) Proceed to step 2.
	YOUR RESPONSE:	If you want a list of currently defined jobname with their specifications, type **Y**. The list is produced. Proceed to step 3. If you don't want a list, type **N**.
3	PROMPT MESSAGE:	?JOBNAME?
	YOUR RESPONSE:	Type in new jobname being defined, being sure that name does not duplicate the name of an existing job in the list. Proceed to step 4.
4	PROMPT MESSAGE:	?1-FASTROW/2-INPUT/3-PLOT/4-SHIP; ONE NUMBER?: (indicates code numbers for each of the 4 commands for which jobs can be defined. Only codes 1 and 2 are covered in this work package.)
	YOUR RESPONSE:	Type **1** if the job is being defined for the FASTROW command. Type 2 if the job is being defined for the INPUT command. Proceed to step 5.
5	PROMPT MESSAGE:	?COL NO.S?:. or ?MORE COL NO.S?:. (MORE COL NO.S?: prompt appears following information message below if you do not type a period after the last column number entered).
	YOUR RESPONSE:	Type in the column number that you want to include in the job. Enter a space between column numbers (DO NOT use separators). Enter the column numbers in the sequence you want them to appear. Type a period after last column number entered to suppress ?MORE COL NO.S? prompt. If you don't type a period, make a blank entry to ?MORE COL NO.S? prompt if you do not wish to add column numbers. Col 0 must be entered first if you typed code 2 in step 4. If code **1** was typed in step 4, proceed to step 9. If code 2 was typed in step 4 (INPUT), proceed to step 6.

Figure 16 (Part 1 of 3). Defining a Guided Data-Entry Job

STEP NO.		
5 (cont.)	INFORMATION MESSAGE:	WIDTH NOW n CHARS. i LEFT (n = No. of chars in selected cols., i = No, of chars (unused) left on the line)
6	PROMPT MESSAGE:	WANT SELECTED IDS FOR INPUT/?: Y/N:
	YOUR RESPONSE:	If you want to specify particular rows (records) as part of the job, type Y, and proceed to step 7. If rows are not included in the job definition, type N, and proceed to step 8.
7	INFORMATION MESSAGE:	USE ROW NUMBERS OR ROWIDS IN QUOTES, T FOR THRU (you are informed that you can specify the rows by either row numbers, or rowids. If you use rowids, each rowid must be enclosed in single quotation marks.) **Note:** Row numbers associated with each record are renumbered as a result of sorting or insertion of new rowids between existing rowids. If you specify a consecutive string of row numbers or rowids by using T between the first and last numbers of the string, sorting or rowid insertion may change the row selections.
	PROMPT MESSAGE:	?ROWIDS?: or ?MORE ROWIDS?: ?MORE ROWIDS?: prompt appears if you do not type a period after last rowid entered.)
	YOUR RESPONSE:	Type in the list of rows to be included in the job listing them in the sequence you want them to appear while the job is being performed. If using rowids instead of row numbers, enclose each rowid in single quotation marks. Enter a space between row numbers or rowids. Proceed to step 8.

Figure 16 (Part 2 of 3). Defining a Guided Data-Entry Job

STEP NO.		
8	PROMPT MESSAGE:	?IS COL n A PROMPT COL FOR INPUT? Y/N: (n = the column number that you entered in step 5 immediately following column 0) **Note:** If you choose the indicated column number as a prompting column, data entry cannot be performed in that column.
	YOUR RESPONSE:	If you want the column number indicated in the prompt message above to be printed as a prompting column following column 0 when the job is being executed, type Y. If you do not want the prompting column, type N. Proceed to step 9.
9	INFORMATION MESSAGE:	.....DONE (the name you assigned in step 3 precedes the word DONE in the message)
	PROMPT MESSAGE:	?JOBNAME? (asks you if you want to define another job)
	YOUR RESPONSE:	If there are no more jobs to define, make a blank entry and proceed to step 10. If you want to set up another another job, return to step 3.
10	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE to save the job setup.

Figure 16 (Part 3 of 3). Defining a Guided Data-Entry Job

STEP NO.		
1	Type **JOBNAME**	Proceed to step 2.
2	PROMPT MESSAGE:	?LIST n EXISTING JNS? Y/N:
	YOUR RESPONSE:	Type **Y** if you want a list, a list, **N** if no list is required. Proceed to step 3.
3	PROMPT MESSAGE:	?JOBNAME?:
	YOUR RESPONSE:	Type in the name of the job to be deleted.
	INFORMATION MESSAGE:	DELETED (notifies you that the deletion was accomplished) **Note:** If you requested a list in step 2, the list is printed out as follows:

```
JOBNAME      COL. NOS             ROWIDS

(Name)       (Col No.s in job)    (rowids in job)
USED WITH (Input or Fastrow)
*****************************
```

Figure 17. Deleting a Job

OBTAINING A LIST OF JOB NAMES AND SPECIFICATIONS

The JOBNAME command is used to store all of the information required to predefine job setups used with the INPUT, FASTCOL, SHIP, and PLOT commands. This task tells you how to obtain a list of the assigned job names for these predefined job setups, and the associated job name specifications.

Task Steps

1. Type **JOBNAME**
2. The following prompt message is produced:

   ?LIST n EXISTING JNS? Y/N:

   (n = No. of job names stored in the application)
3. Respond to the prompt given in step 2 by typing **Y**.
4. A list of job names and their associated specifications is produced.
5. Strike ENTER or RETURN key until you have exited from the JOBNAME command.

QUERYING THE APPLICATION

This task tells you how to use the QUERY command to examine the key user-entered information in the application contained in the active workspace.

Task Steps

1. Type **QUERY**, and in response to the first prompting message, type in the name of the option(s) you want to select.

2. Respond to any prompts that appear for each selected option to select the information that you want included.

Query Options

- SETUP provides you with the details of the data file setup, including total number of columns, column widths, decimal positions, and column headers.

- HEADS allows you to examine the data file column headers for selected columns.

- DATA allows you to examine selected columns of currently selected rows (records) in the data file. You can select specific records from those currently selected.

- REPORTS allows you to examine the setups for report numbers defined by the SETREPORTS command. You can select either a report setup overview that tells you only which report and print options are being used in the report, or the setup details, which lets you examine the detailed setup for each selected report or print option.

DETAILED PROCEDURE FOR EXECUTING QUERY COMMAND

1. Type **QUERY**.

2. Respond as indicated to the system messages Figure 18 on page 64.

STEP 2 MSG. NO.	SYSTEM MESSAGE	YOUR RESPONSE
1	OPTION SEPARATOR IS A ,	None. This message tells you to use a comma as a separator between the names of the options if you decide to list more than one option in response to message 3.
2	n OF i ROWS SELECTED	None Tells you the number (n) of rows (records) that are currently selected from the total number (i) of records in the data file. If all records are not selected (n not equal to i) and you want all records, exit from QUERY without making an option selection, then execute SALL. Then, repeat steps 1 and 2 above.
3	?OPTION NAMES OR LIST?:	If you want a list of the options, type **L**. Message 4 will appear next. If you do not require a list, or if message 4 has already been produced, type in one or more of the option names, exactly as they appear in message 4. If you type in more than one option name, type in a comma (,) between each name.
4	OPTIONS ALL DATA HEADS REPORTS SETUP PROGRAMS	None. This message lists the option names that you can type in response to message 3. Message 3 is repeated following this message giving you another opportunity to type in the options you want.

Figure 18. System Messages and Responses, QUERY command

3. If you typed **ALL** in response to message 3 above, you are not given the opportunity to make any selections, and the listings will be generated for each option in the sequence listed in message 4 above.

4. The list for each selected option is preceded by the following heading:

   QUERY (OPTION NAME) (DATE) (TIME)

   Where "OPTION NAME" is the name of the option, "DATE" is in the form month/day/year, and "TIME" is the time of day in local time.

5. Figure 19 on page 66 provides the prompt messages for each option The prompt messages give you the opportunity to more precisely define the information that you want in the listing.

6. The pages following the opposite page describe the informational messages and format of the listings for each option.

7. Following the last line produced during execution of QUERY, the following message appears:

```
***END OF QUERY***
```

8. If your terminal is a display terminal with full-screen edit capability, exit from the QUERY command by typing **END** in response to ?ENTER SUBCOMMAND OR HELP?: prompting message.

OPTION	MSG. NO.	PROMPTING MESSAGE	YOUR RESPONSE
SETUP	1	?LIST ALL COL NO.S AND WIDTHS? Y?N:	If you want specifications on all columns, type **Y** If you want specifications on only certain columns, type **N** If you typed **N**, message 2 appears next.
	2		Type in the numbers of the columns for which you want specifications. Provide a space between each column number.
HEADS	1	?COL NO.S OR ALL?:	If you want headers for all columns in the file, type **ALL.** In this case the column numbers are listed in numerical sequence from left to right. If you want only certain columns, or if you want the columns listed (left to right) in non-numerical sequence, type in the column numbers that you want, in the desired sequence. Provide a space between each column number.
DATA	1	?COLS/ROWIDS/N?:	Type in the column numbers that you want in the desired sequence. Provide a space between each column number. If you want all columns in numerical sequence, type **ALL.** Next, type a slash (/), followed by a listing of the currently selected rowids that you want to include. Provide a space between each rowid. If you want all of the currently selected rows, type **ALL.** If you want the column headers to appear in the listing, no further entries are required. If you do not want column headers, type **/N.**
REPORTS	1	?FULL SPEC LIST..PRT HDRS ETC? Y/N:	If you want formal headers, title sections, group indications, and footnotes to appear in the list, type **Y** If you want only an indication of whether these items have been specified, type **N.**

Figure 19. Prompting messages for QUERY options

OPTION	INFORMATION MESSAGE	EXPLANATION
SETUP	n COLUMNS and r ROWS	Indicates the total number (n) of column numbers in the file, and the total number (r) of rows (records) in the file.
	HIGH COL NO. IS n	Indicates the highest column number (n) that is contained in the data file setup.
	COL NO. WIDTH DECIMALS	This message provides headings for the tabular array of column specifications. Selected column numbers are listed in numerical sequence under COL NO. The number of decimal places (numeric only) and character width are listed for each listed column. A blank in the DECIMALS column means that the column contains alphameric data. The header for each listed column is listed to the right of the tabular array.
REPORTS	NO.S / NAMES NOTE: The following information messages are produced for each report number:	This message provides column headings for a list of all report numbers and their assigned names (if any).
	REPORT n PRINTS COLS:	Lists (following the colon) the data file column numbers included in report n in their left-to-right sequence.
	*FORMAL HEADERS	Indicates that formal headers are included in the report. If full specifications are being listed, the formal headers are printed out below this heading as they would appear in a report.
	*TITLE SECTION	Indicates that a title section is included. If full specifications are being listed the title is printed out below this heading.
	*GROUP INDICATIONS	Indicates that group indications are included in the report. If full specifications are being listed, the group indications are printed out below this heading as they would appear in a report.
REPORTS	*FOOTNOTES	Indicates that footnotes are included in the report.

Figure 20 (Part 1 of 2). Information Messages for QUERY Options

OPTION	INFORMATION MESSAGE	EXPLANATION
REPORTS (cont'd)	*FOOTNOTES	If full specifications are being listed, the footnotes are printed out below this heading as they would appear in the report.
	*PRINT OPTIONS:	Lists (following the colon) the print option numbers that have been selected for a regular report. If full specifications are being listed, the next three messages are produced:
	*PREPROCESSING:	If the pre-processing print option is selected, the pre-processing statement is printed.
	*CONTROL BREAKS:	If control breaks are selected, the control break column numbers are listed, with the highest control break level listed first.
	*CONTROL BREAK PROGRAMS:	If control break programs are selected, the program numbers are listed.
	*PATTERNED OUTPUT	If the setup is for a patterned output, this message is printed. If full specifications are being listed, the coding for each report line is listed under this heading.
PROGRAMS	n REGULAR PGM(S) NO.S:	Lists (following the colon) the number (n) of regular stored programs, and their assigned numbers.
	n CONTROL BREAK PGM(S) NO.S:	Lists (following the colon) the number (n) of control break stored programs, and their assigned numbers.
	***REGULAR PGM NO. n	This message appears for each regular program number (n). Following this heading, the calculation statement(s) of the program are printed.
	***CONTROL BREAK PGM NO. n	This message appears for each control break program number (n). Following this heading, the calculation statement(s) of the program are printed.

Figure 20 (Part 2 of 2). Information Messages for QUERY Options

INSERTING AND CHANGING ROWIDS

This task tells you how to:

- Obtain a list of the row numbers and rowids in the data file
- Change existing rowids
- Insert new rowids above an existing rowid

Task Steps

1. Type **ROWIDS**.

2. If you want a list of rowids and row numbers, respond to the ?LIST THE n ROWIDS? Y/N prompt by typing **LIST** or **L**. The list is produced. Make a blank entry if no list is required.

3. Respond to the ?ANY ROWID? prompt as follows:

   a. If there are no further changes or insertions to be made, make a blank entry, and proceed to step 7.

   b. If you want to change an existing rowid, type in the rowid to be changed, and proceed to step 4.

   c. If you want to insert a new rowid, type in the existing rowid that is below the point where you want to insert the new rowid, and proceed to step 4.

4. Respond to the ?REPLC OR INSERT R/I?: prompt message as follows:

   a. If you are changing (replacing) an existing rowid, type **R**, and proceed to step 5.

   b. If you are inserting a new rowid, type **I**, and proceed to step 6.

5. Respond to the REPLACEMENT ROWID? prompt message by typing in the rowid that is to replace the existing rowid. The information message OK appears if the rowid is accepted. Proceed to step 3.

6. Respond to the ?ROWID TO INSERT BEFORE n?: prompt (n = rowid entered in step 3) by typing in the new rowid to be inserted. The information message OK appears if the rowid is accepted. Proceed to step 3.

7. Information message DONE. ALL n RECORDS SELECTED (n = net total No. of rowids in the file) appears, followed by the BE SURE TO)SAVE message. Respond by executing)SAVE.

Highlights

- ADDLOCK and IDLOCK must both be set off to insert new rowids (see task 3).

- IDLOCK must be off to change an existing rowid (see task 3).

- Executing ROWIDS cancels any current selection of records in the data file.

OBTAINING LISTS OF ROW NUMBERS AND/OR ROWIDS FOR DATA FILE

This task tells you how to obtain the following types of row numbers and/or rowids for the records in the data file:

- Row numbers only of currently selected records only, in their currently sorted sequence. You obtain this listing by typing CALCULATE, and entering the SHOWIF calculation statement.
- Rowids and their corresponding row numbers for all records in the file, in row number sequence. You obtain this listing using the ROWIDS command.

Highlights

- The ROWIDS command cancels any current selections of records, so that all records in the file are selected.
- Row numbers are assigned to rowids based upon the physical sequence in which the records are loaded into the active workspace by executing the)LOAD, ACTIVATE, CONSOL, LOADFILE, or ANALYZE commands. While the application is in the active workspace, row number assignments are affected by inserting new records above existing records, or by deleting existing records. New records added to the bottom of the file are assigned row numbers in sequence starting after the highest row number assigned to an existing record.
- Executing the ROWIDS command lists all rowids in ascending row number order. Both the row numbers and the rowids are listed.
- Executing the CALCULATE command with a SHOWIF statement produces a listing of the row numbers for the currently selected records, in their currently sorted sequence. The rowids are not listed.
- Row numbers can be used instead of rowids in computation statements (see "Basic-Level Computations" on page 93), and in the print pattern for patterned reports (see "Setting Up Patterned Reports" on page 145).

Task Steps

- To obtain a list of row numbers and rowids in row number sequence, proceed as follows:
  1. Type **ROWIDS**, and respond to the ?LIST THE n ROWIDS? Y/N: prompt by typing **Y**. The list is produced.
  2. To exit the ROWIDS command, make a blank entry to the ?ANY ROWID? prompt.
- To obtain a list of the row numbers for the currently selected records in their currently sorted sequence, proceed as follows:
  1. Type **CALCULATE**, and respond to the first ?CA? prompt by typing **SHOWIF**. The list of row numbers is produced.
  2. To exit the CALCULATE command, make a blank entry to the next ?CA? prompt.

USING LIST COMMAND TO GENERATE SIMPLE REPORTS

Using LIST, you can generate one-time reports after any required processing of the data file is accomplished. The list setup is not stored in the application.

You can specify a report title, the data file column numbers, the order you want them to appear, and the spacing between columns.

TASK STEPS

1. Refer to "Chapter 3. Advanced Commands" on page 194 to perform any required processing of the data file to prepare it for report generation.

2. Refer to the section "Setting Up Report Output Controls" on page 248 to set up report output controls. Refer to the section "Printer Setup" on page 191 to set up the printer if a hard-copy is being produced.

3. Type the LIST command.

4. Indicate whether you want the data file column numbers to appear in the report.

5. Specify the column numbers in the sequence you want them to appear, with any non-standard spacing (standard spacing is one character).

6. Enter the one-line title of the report, if needed.

7. Notify the system that you are ready to generate the report.

HIGHLIGHTS

- Column specifications are normally entered on one line in response to ?COL NO.S? prompt.

- Column numbers cannot be repeated in column specifications (See Notes to Figure 22 on page 75 if you want to repeat a column).

- LIST does not allow any pre-processing as part of the setup. You must complete processing of the data file before LIST is entered.

- The page dimensions (lines/page, line width, margins, automatic pagination, and date stamp) are established by SETPAGE. Line spacing is set up by SETSPACE. Refer to the section "Setting Up Report Output Controls" on page 248.

- You are informed of the number of print line characters required to print the columns you have selected. You are also informed of the number of unused remaining character positions on the line in case you want to add more columns.

- After the setup is completed, the system waits for you to notify it that you are ready to generate the report. You notify the system by striking the RETURN or ENTER key.

- Zero spacing between two columns will merge them into a single column.

COLUMN SPECIFICATIONS

This summary presents the setup parameters in the sequence in which they are entered. Items 1 through 6 below constitute the column specifications normally entered on one line in response to the ?COL NO.S? prompt.

1. Suppress Column Numbers above Headers. No entry if you want the numbers. If you don't want them, type N.

2. Left Margin Indent. If no indent is specified, first column of report will be justified. If you want an indent, specify the number of spaces in parentheses ().

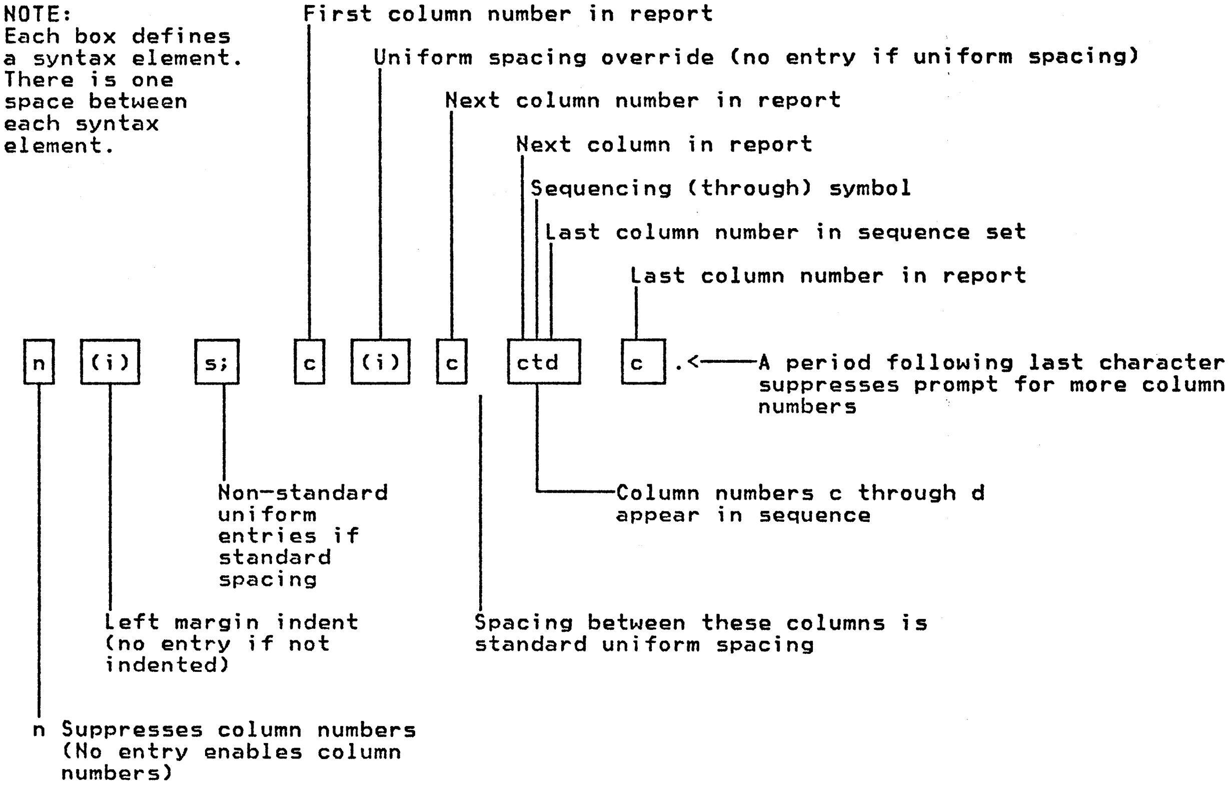
3. Uniform Spacing Between Columns. Standard spacing is one character. If you want to change to another uniform spacing, type S followed by the number of characters.

4. First Column Number in the Report. Type in the number of the first (left-most) data file column that you want to appear in the report.

5. Uniform Spacing Override. Item 3 establishes the uniform spacing between columns. If you want to override this spacing between two particular columns, type the number of characters in parentheses () between the two column numbers.

6. Remaining Columns and Uniform Spacing Override. Same as items 4 and 5. Enter the remaining data file column numbers in the order that you want them to appear, followed by uniform spacing overrides, when needed.

   When 3 or more consecutively numbered data file columns are to appear in sequence in the report, enter the first column number, then a **T** (for through), followed by the last column number in the sequence. Example: 1T8 means data file column 1 through 8.


NOTE:
Each box defines a syntax element. There is one space between each syntax element.
First column number in report
Uniform spacing override (no entry if uniform spacing)
Next column number in report
Next column in report
Sequencing (through) symbol
Last column number in sequence set
Last column number in report
n
(i)
s;
c
(i)
c
ctd
c
.<
A period following last character suppresses prompt for more column numbers
Non-standard uniform entries if standard spacing
Column numbers c through d appear in sequence
Left margin indent (no entry if not indented)
Spacing between these columns is standard uniform spacing
n Suppresses column numbers (No entry enables column numbers)

NOTES:

1. The letter i in the above is replaced in the actual column specifications by the number of character positions in the indentation, non-standard uniform spacing, or uniform spacing override.

2. The letters c and d in the above are replaced in the actual column specifications by the number of a column that is to be included in the report.

3. The letters n, s, and t, and the parentheses (), actually appear in the column specifications, when applicable.

Figure 21. Column Specification Syntax

Notes:

1. The letter i in Figure 21 on page 73 is replaced in the actual column specifications by the number of character positions in the indentation, non-standard uniform spacing, or uniform spacing override.

2. The letters c and d in Figure 21 on page 73 are replaced in the actual column specifications by the number of a column that is to be included in the report.

3. The letters n, s, and t, and the parentheses (), actually appear in the column specifications, when applicable.

MESSAGE	
MESSAGE:	? COL NO.S ?: Demands column specifications for report.
RESPONSE:	Enter column specifications in the syntax given in Figure 21 End with a period (.) If you do not require more columns, and want to go directly to the report title prompt.
MESSAGE:	REP n CHARS WIDE. i LEFT: The message informs you of the number (n) of print characters required to print the columns already specified, and the number (i) of unused character positions that remain on the print for printing more columns.
RESPONSE:	No response. If you want to specify more columns, and if room is available on the print line, enter additional column specifications in response to the next prompt message.
MESSAGE:	? MORE COL NO.S ?: This prompt message appears if you did not end the column specifications entry with a period. Asks you if you want to specify more
RESPONSE:	No entry brings up the report title prompt. If you enter more columns, end the specification with a period (.) if you do columns not want this prompt to be repeated.
MESSAGE:	? TITLE ?: Asks you to enter a one- line title for the report
RESPONSE:	No entry if no title needed. If you want a title, type it in (precede with spaces if you want to indent it from the left margin)
MESSAGE:	? SET FORM, CR OR ENTER: Informs you that the system will produce report when you strike the RETURN OR ENTER key.
RESPONSE:	If required, set printer to top of form, or clear the display. Strike RETURN or ENTER when you are ready to generate the report.
MESSAGE:	? ENTER SUBCOMMAND OR HELP?: This message only appears OR HELP ?: on display terminals with the full-screen edit capability.
RESPONSE:	Type **end** to exit from the LIST command.

Figure 22. Messages and Responses for the LIST Command

Notes:

1. If you want a column to appear more than once in the (rowids, for instance, at left and right edges), create another column number in the data file setup, and execute an across calculation to copy the data from the column to be repeated into the new column. Then,

both columns are included in the column specifications entered for the LIST command. (See note 2 for an example.)

2. The form of the across calculation statement is as follows:

   ac1 = c2

   where

c1	column number being copied into column number c2
c2	column number that duplicates column number c1

SORTING

This work package tells you how to sort the data file, using the SORT or SOR command (SOR is the noninteractive form of SORT).

SORT is sensitive to selection (see the section "Selection" on page 77). That is, only the currently selected records are sorted.

You can sort a column is ascending or descending sequence. For numeric columns, the numbers in the column will appear after sorting with the lowest number first (ascending) and the highest number last, or with the highest number first (descending) and the lowest number last.

For alphameric columns, the row values are sorted (for an ascending sort) in ascending alphabetical order in each character position, with numeric characters following in ascending material order below the last alphabetical character. If sorted in descending order, the sequence is reversed.

Alphameric columns can be sorted on specified character positions.

When two or more columns are specified in a sorting statement, the sorting proceeds in the sequence that the columns are listed in in the sorting statement. In this case, the sequence in which the columns are listed is very important. For instance, if you want to sort an employee file into departmental groupings (separate listing of employees for each department), and then have the list of employees sorted into ascending alphabetical order for each department, you would specify the column containing the employee name first, and the column containing the department code last. Always specify the column number for the smallest grouping first, and the column number for the largest grouping (in this case the department) last.

Never intentionally interrupt a sorting operation while it is in progress by striking the ATTN key. Interrupting a sort can seriously scramble the data file.

TASK STEPS

1. Type **SORT** If you are sorting only one column, proceed to step 2. If you are sorting on two columns, respond to the ?COL NO.S?: prompt by listing the column number for the smaller grouping first, separate with a comma, and then list the column number for the larger grouping.

   Example:

?COL NO.S?: 1,2	sorts column 1 within column 2. that is, the sorting of column 2 is done before the sorting on column 1.

Note: ?COL NO.S?: 1 2   sorts column 1 on position 2.

If SOR, the noninteractive version of SORT, is used, the above example would be typed in one line: **SOR '1,2'**.

2. Enter the sorting statement in the following format:

   - To sort a column in ascending order:

     N A B C   Where: n = the column number

     a, b, and c are character positions within the column (omit for numeric columns, or if you are sorting on all character positions of an alphameric column).

   - To sort a column in descending order:

     -ND A B C

     Where:

     N   Col. No.

     D   Suffix to indicate descending sequence

     A,B, and C are same as above

   - If you want to sort on more than one column, list the columns in the order that you want the sort to proceed, and use a comma as separator between each column specification.

     3D,0 1 2 3,5D   (Sort column 3 in descending order, then sort column 0 in ascending order on character positions 1, 2, and 3, then sort column 5 in descending order.)

SELECTION

This section tells you how to write selection statements that are used to select records from the data file. The selection statements are entered using the SELECT, CALCULATE, PROGRAM, LOADFILE, or ANALYZE commands.

Selection is accomplished by comparing the row values in one or more specified columns to a constant, to a variable, to a calculated result, or to a value in another column of the data file. Note that, if a variable is non-numeric, it cannot be used in a SELECTION statement.

Relational operators are used to specify the type of comparison that is to be performed in the arguments (column numbers, variables, constants, or calculation expression) placed to the left and right of the operator.

RELATIONAL OPERATORS USED IN SELECTION STATEMENTS

Symbol	Description
eq	Equal to. Requires that the left argument be equal to the right argument in order for the record to be selected. Can be used in statements that specify numeric or alphameric columns.

ne	Not equal to. Requires that the left argument not be equal to the right argument in order for the record to be selected. Can be used in statements that specify numeric or alphameric columns.
lt	Less than. Used only with numeric columns. Requires that the left arguments have a smaller magnitude than the right argument in order for the record to be selected.
gt	Greater than. Used only with numeric columns. Requires that the left argument have a greater magnitude than the right argument in order for the record to be selected.
le	Less than or equal to. Used only with numeric columns. Requires that the left argument have a magnitude no greater than the right argument in order for the record to be selected.
ge	Greater than or equal to. Used only with numeric columns. Requires that the left argument have a magnitude no less than the right argument in order for the record to be selected.
.scan	Text search. The alphameric column number in the left argument is searched for the rows that contain the word, code, or phrase specified in the right argument. The word, code, or phrase must be enclosed in single quotation marks, and must be prefixed by k.

HIGHLIGHTS

- After each selection statement is entered using the SELECT, LOADFILE, or ANALYZE commands, you are informed of the number of records that are currently selected.
- Select has no effect upon the records of the data file that are not selected. That is, records that have not been selected remain in the file.
- Commands that are sensitive to selection operate only on the currently selected records.
- The noninteractive version of SELECT is SEL.

LIST OF COMMANDS THAT AFFECT (OR ARE AFFECTED BY) SELECTION

Commands that Permit the Entry of Selection Statements

SELECT
ANALYZE
LOADFILE
PROGRAM
CALCULATE

Commands that are Unconditionally Sensitive to the Current Selections

QUERY (DATA OPTION)
SELECT
SORT
SUMMARY
ERASEROWS
LIST

REPORTS
DATA

Commands that are Conditionally Sensitive to the Current Selections

CALCULATE (if calculate statements is followed by stand-alone IF)
SHIP (if selected records are specified)
PLOT (if selected records are specified)
FASTCOL (if new rowids are not specified)

Commands that are Insensitive to (but do not cancel) Current Selections

STORE
)SAVE
ADDLOCK
IDLOCK

Commands that Cancel the Current Selections (opens up whole file)

ROWIDS
INPUT
FASTROW
FASTCOL (if new rowids are specified)

USING SELECT TO ENTER AND EXECUTE SELECTION STATEMENTS

1. Type **SELECT**.

2. The information i OF n NOW SELECTED appears, where i is the number of records currently selected, and n is the total number of records in the data file.

3. The ?SELECTION STATEMENT?: prompt appears. Respond by typing in a selection statement.

4. The message in step 2 is repeated. If you want to exit from the SELECT command, make a blank entry in response to the next ?SELECTION STATEMENT?: prompt. If you want to enter another selection statement, proceed to step 3.

5. To cancel the current selection (all records in the file are selected), type

   SALL, ROWIDS, or **FASTROW.**

SYNTAX OF SELECTION STATEMENTS

(Lead-In Keyword) (1st expression) (logical operator) (2nd expression....

Note: Parentheses do not actually appear in the typed selection statement.

Lead-In Keywords

Every selection statement must begin with one of the following keywords:

IF	Begins a new selection process.
ANDIF	Lead-in to a selection expression that imposes additional conditions on the records currently selected. Does not cancel prior selections, but eliminates

	currently selected records that do not meet the requirements of the ANDIF expression.
ORIF	Lead-in to a selection expression that opens up the entire file for additional selections. The newly selected records are added to those currently selected.
OTHERWISE	No selection expression is written following this keyword. That is, OTHERWISE stands alone. Causes reverse selection to be performed. That is, all records not currently selected are selected and the currently selected records are de-selected.
ALL	No selection expression is written following this keyword. That is, ALL stands alone. Cancels all prior selections and selects all records in the file.
ERASE	No selection expression is written following this keyword. That is, ERASE stands alone. The currently selected records are made ready for erasure, using the ERASEROWS command. Records are not actually erased until ERASEROWS is executed.
SHOWIF	No selection expression is written following this keyword. That is, SHOWIF stands alone. Produces a listing of the row numbers of the currently selected records, in sort sequence order.

Logical Operators

Logical operators allow multiple selection expression to be strung together in a single selection statement. There are two logical operators:

AND	The selection requirements of the expressions on both sides of the AND operator must be satisfied before a record is selected.
OR	A record is selected if it satisfies the selection requirements of the expression on either (or both) sides of the OR operator.

SELECTION EXPRESSIONS

(left argument) (Relational operator) (right argument)

Each selection expression must contain a relational operator (see first page of this section, page 77), preceded and followed by arguments. The arguments can contain any of the following elements:

COLUMN NUMBERS	Any stand alone number in an argument is a column number. If the column number is followed by one or more numbers in parentheses, the numbers in parentheses specify the character positions within the column. For example: 1 (1 2) specifies character positions 1 and 2 of column 1.
CONSTANTS	A constant is indicated by the prefix k to a numeric or nonnumeric value. If the value is nonnumeric, it must be enclosed in single

quotation marks. Two or more constants can be strung together with a single **k** prefix, using a comma as a separator between the constants. For example:

k100,150,203 identifies numerical constants of 100, 150, and 203.

VARIABLE NAMES

A variable name is indicated by enclosing the name in single quotation marks, and prefixing the name with the letter **v**. For example:

v'tab5' identifies a variable whose name is tab5.

CALCULATION EXPRESSIONS

A calculation expression can only be used with numeric columns. A calculation expression used as the left or right argument in a selection statement is enclosed in parentheses. The calculation result must be obtained before the comparison specified by the relational operator outside the parentheses can be performed. Only across calculations can be performed. See the section "Basic-Level Computations" on page 93 for more details. Example:

if (1+2)ne3 (If the sum of columns 1 and 2 is not equal to column 3.)

Examples of Selection Expressions

1.
```
IF 3 EQ K1800, 5600, V'TAB5'
     ORIF 4 EQ K1800, 5600, V'TAB5'
```

   (If column 3 and 4 contain any one of 1800, 5600, or the current value of the variable 'TAB5', select that column.)

   Note: The listing of '1800, 5600, V'TAB5'' defines an **OR** relationship.

2.
```
IF 2 LT (K100 * 3)
```

   (If column 2 is less than the result of multiplying the value in column 3 by 100)

   Note that the arithmetic expression K100 * 3 is enclosed in parentheses, indicating that the arithmetic expression must be resolved before the relational operator (**EQ**) can be applied. Only "across" arithmetic expressions can appear in selection statements.

3.
```
IF 0 EQ K'117, 222'
```

   (At the next prompt), erase.

   (If column 0 contains rowids 117 or 222, select that row for erasure.)

   After you type **ERASE**, the system will ask if you wish to erase the currently selected rows (in this case, two rows). If not, press **ENTER** and no action will be taken. If so, answer **Y** to the appropriate prompt.

4.
```
IF 0 NE K'107,109,110'
ANDIF 3 EQ K'LOS ANGELES'
```

(If column 3 or any record except those with rowids 107, 109, and 110 contains the name LOS ANGELES)

You can exclude specific rows (records) from the selection process by listing the rowids to be excluded following a selection statement that begins : "If 0 NE.....", and then preceding the next selection statement with the ANDIF keyword.

5.
```
IF 3 GE K2000 OR 5 NE K200 AND 4 EQ K795
```

(If column 4 equals 795 and either column 5 is not equal to 200 or column 3 is greater than or equal to 2000.)

note.The example above is logically equivalent to

```
(IF 3 GE K2000 OR 5 NE K200) AND 4 EQ K795
```

Thus, ADRSII selection statements normally proceed from left to right. If you wish to override this rule, use parentheses.

Example:

```
IF 3 GE K2000 OR (5 NE K200 AND 4 EQ K795)
```

(Means that selection will occur either if column 3 is greater than or equal to 2000, or if both statements in the parentheses are true.)

Note: This example is not logically equivalent to the first example in this step.

6.
```
SHOWIF
SELECTED ROWS 1 2 5 6
```

(The currently selected row numbers are 1, 2, 5, and 6)

Entering the keyword SHOWIF produces an information message that lists the row numbers (not rowids) of the currently selected records, in their currently sorted sequence.

7.
```
IF 3 NE 4
OTHERWISE
```

(Select all records in which column 3 is not equal to column 4. Then, select all records in which column 3 is equal to column 4)

A selection statement that is followed by another selection statement with the keyword OTHERWISE produces reverse selection. that is, OTHERWISE selects all records not currently selected.

Using the SEL Command to Enter and Execute Selection Statements

(This noninteractive version of SELECT would logically be used with the PROGRAM or CALCULATE commands.)

Type **SEL**, a space, a single quote, the selection statement, and then another single quote.

Examples:

```
(a) SEL 'IF 3 EQ K2500'
(b) SEL 'IF 2 EQ K''FOG'''
```

Note: In example (b), wherever quotes are normally required in a selection statement, you must use double single quotes under the SEL command.

SELECTIVELY DELETING RECORDS FROM FILE

This task tells you how to delete records from the data file, using the SELECT and ERASEROWS commands. You must first select the records to be deleted, using the SELECT command. Then, you can delete the records, using the ERASE option of SELECT, or using the ERASEROWS command.

Task Steps

1. Type **SELECT**.
2. Respond to the first ?SELECTION STATEMENT? prompt by typing in the following statement:

   IF 0 EQ K(LIST OF ROWIDS TO BE DELETED)

   (parentheses are not actually typed in the selection statement)

   The list of rowids should enclose each rowid in single quotation marks. Enter comma as separator between rowids.
3. If you want to use the ERASEROWS command to accomplish the erasure, proceed to step 4. If you want to use the ERASE option of the SELECT command to accomplish the erasure, respond to the nest ?SELECTION STATEMENT?: prompt by typing **ERASE**. Then, proceed to step 5.
4. Exit the SELECT command by making a blank entry to the next ?SELECTION STATEMENT?: prompt. Then type **ERASEROWS**, and proceed to step 5.
5. The information message n ROWS SELECTED FOR ERASURE FROM TOTAL OF t appears, where n is the number of rows selected for erasure in step 2, and t is the total number of rows in the data file.
6. The prompt message ?LIST ROWIDS TO BE ERASED? Y/N: appears. If you want a listing, type **Y**. If you don't want a listing, type **N**. If you typed **Y**, the list is produced, followed by the message END OF LIST.
7. Respond to the prompt message ?ERASE n ROWS?: with **Y** if you still want to erase the listed records. The information message WORKING.....DONE. ALL n RECORDS SELECTED appears, where n is the new total number of rows (after deletion) in the file.

Highlights

- IDLOCK must be off to delete the selected records.
- You can select records for erasure in step 2 above by entering appropriate selection statement that will select the records you want to delete. If you are unsure about which records have been

selected, you can obtain a list and respond by typing N to the ?ERASE n ROWS?: prompt if the list includes records you do not want to erase.

SYNTAX OF STATEMENTS ENTERED UNDER CALCULATE AND PROGRAM COMMANDS

Types of Statements

1. Selection Statements

   Any selection statement in the format and syntax specified in the section "Selection" on page 77. The selection statement may include across calculation expressions (without an equal sign) for computing results that are then tested in accordance with the relational operator in the selection statement.

2. Calculation Statements

   Calculation statements without a conditional expression are not affected by prior selection statements. That is, calculations are performed on records of the file without regard to whether these records are selected or not selected. Conditional expressions within a calculation statement are used to limit the storage of calculation results to those records (across) or columns (down) specified by the conditional, or to the records selected by a prior selection statement. A conditional expression in a calculation statement is valid only for across. The general format of a calculation statement is shown in Figure 23.

COMPUTATION SECTION					RESULT DISPOSITION SECTION	
(Dir. Code)	(Left Argument)	(Arith. Oper.)	(Right Argument)	=	(Result Disposition)	(Conditional Expression)
a (Across) OR d (Down)	Omitted for Monadic Operators	Monadic OR Dyadic		Separates Result Disposition Section from Computation Section	Col. No. OR Rowid/Row No. OR Variable Name	Selects Rows in which Result Is Stored

Figure 23. Format of Calculation Statement. Calculation statement examples appear in the section "Examples of Calculation Statements" on page 91.

- Direction Code indicates direction of calculation as either across columns or down rows.

- Left Argument is the variable data that stands to the left of the arithmetic operator. The left argument is omitted when a monadic operator is used.

- Arithmetic Operator defines the arithmetic operation being performed on the left and/or right arguments. Dyadic operators require both left and right arguments. Monadic operators require only a right argument.

- Right Argument is the variable data that stands to the right of the arithmetic operator.

- Equal Sign (=) separates the computational section of the statement from the result disposition section. If equal sign is omitted, the computation results are displayed but are not stored. If equal sign is included, the computation results are stored, but are not displayed.

- Result Disposition appears to the right of the equal sign (if an equal sign is included), and indicates one of the following dispositions of the result produced by the computation section of the statement:

  - A numeric column number (across calculation) in which result is to be stored.

  - A rowid/row number (down calculation) in which result is to be stored.

  - A variable name whose value is specified by the result.

- Conditional Expression is an optional element of a calculation statement that appears to the right of the result disposition. If a conditional expression is not included in the statement, the result is stored in all rows of the specified column (across). If a conditional expression is included, the result is stored only in those columns/rows that meet the requirements of the conditional expression.

Detailed Explanation of the Elements in Calculation Statements

Note: Either rowids or row numbers can be used in arguments, result dispositions, or conditional expressions. If rowids are used, they must be enclosed in single quotation marks.

1. Arguments

   The arguments of a calculation statement can be simple or compound:

   - Simple Arguments contain either a constant, a single numeric column number (across), a single rowid/row number (down), or a single variable name (across or down). When the calculation statement is executed, the column number, rowid/row number, or variable name is replaced by the row value (across) in the specified column number, the column value (down) in the specified row number, or the current value of the variable defined by the variable name (across or down).

   - Compound Arguments contain an arithmetic operator and its associated arguments. The compound argument must be enclosed in parentheses if the normal left-to-right sequence of execution must be suspended while the compound argument is resolved, that is, while the result is obtained. In other words, you must enclose a compound argument in parentheses within the calculation statement in order to ensure that the result of the calculation is obtained before the arithmetic operator outside the parentheses is applied to the compound argument.

2. Arithmetic Operators

Note: Non-numeric columns or variables used in SELECTION or CALCULATION statements can be used only with "equal" or "not equal" operators. Numeric columns or variables can be used with any of the operators.

Example of valid statement:

IF 2 EQ K'ABC' (Col. 2 is alpha and ABC is an alpha constant)

Examples of invalid statements:

IF 2 EQ V'VARNAME' (where VARNAME is alpha created using any one of EDIT, APL, or BUSFACTS)

IF 2 EQ 3 (where 2 and 3 are alpha columns)

See Figure 24 on page 88 and Figure 25 on page 89.

Dyadic operators include: add, subtract, multiply, divide, residue, exponentiation, logarithm, maximum, minimum, rotation, date conversion, text search, and table look-up.

Monadic operators include: absolute value, signum, reciprocal, negation, total, running total, list, execute, and message. The pages that follow define each arithmetic operator in more detail.

3. Result Disposition

For across calculations, a number to the right of the equal sign specifies a numeric column number in which the result is to be stored.

For down calculations, a number to the right of the equal sign specifies a rowid/row number in which the result is to be stored.

For across or down calculations, a name in single quotation marks, prefixed with a v, specifies the name that is being assigned to the calculation result whose row/column storage location is specified in the calculation statement.

4. Conditional Expression

For across calculations, a conditional expression prefixed by the IF keyword is a standard selection statement causing the calculation result to be stored only in those rows (records) that meet the selection criteria in the conditional expression. Selections made in prior selection statements are disregarded.

For across calculations, a conditional expression prefixed by the i (include) or e (exclude) code contains a list of rowids/row numbers (across) to be included in, or excluded from, the rows/columns that are to store the calculation result. Selections made in prior selection statements are disregarded.

Conditional expressions can be written that make the storage of calculation results conditional on prior selection statements, as follows:

- A conditional expression with a stand-alone IF keyword causes results to be stored only in the currently selected records.
- A conditional expression with a stand-alone OTHERWISE keyword causes results to be stored only in those records not currently selected.
- A conditional expression that contains ANDIF as the lead-in keyword causes results to be stored only in those currently selected records that also satisfy the requirements of the ANDIF expression.
- A conditional expression that contains ORIF as the lead-in keyword causes results to be stored only in the currently selected records and any additional records selected by the ORIF expression.

Symbol or Abbrev.	Type	Description
+	Dyadic	Normal Addition Add the left argument to the right argument.
-	Dyadic	Subtraction. Subtract the right argument from the left argument
*	Dyadic	Multiplication. Multiply the right argument by the left argument.
/	Dyadic	Division. Divide the left argument by the right argument.
rs	Dyadic	Residue. Divide the right argument by the left argument, and obtain the remainder. Only the remainder is stored (used for odd lot calculation, for example).
p	Dyadic	Exponentiation. Raise the left argument to the power specified by the right argument. The right argument is normally a constant.
lg	Dyadic	Logarithm. Obtain the logarithm of the right argument to the base specified in the left argument. The left arguments normally a constant.
mx	Dyadic	Maximum. Determine whether the right argument or the left argument contains the larger value, and select the larger of the two.
mn	Dyadic	Maximum. Determine whether the right argument or the left argument contains the lesser value, and select the lesser value.
ab	Monadic	Absolute Value. Convert any negative values in the right argument to positive values.
sg	Monadic	Signum. Evaluate the right argument and deliver +1 if the value is a positive number, -1 if the value is a negative number,or 0 if the value is 0.
/	Monadic	Reciprocal. Divide the right argument into 1.
-	Monadic	Negation. Reverse the signs of the numbers in the right argument.
+1	Monadic	Total. Sum the columns or rows specified in the right argument (you can use t for through when specifying a sequential set of columns or rows).

Figure 24. Arithmetic Operators

Symbol or Abbrev.	Type	Description
.tlu	Dyadic	Table Look-Up. (Across Calculations Only.) Match the values in the column specified in the left argument against the values in a look-up table whose name (enclosed in single quotation marks and prefixed by v) is specified in the right argument.
ro	Dyadic	Rotation. (Across Calculations Only.) Push the row values in the column number specified in the right argument up or down by the number or rows specified in the left argument (normally a constant). The sign of the left argument determines whether the row values are pushed down (negative sign) or up (positive sign).
.runtot	Monadic	Running Total. Calculate the running total for the column number or row specified in the right argument.
.dateval	Dyadic	Date Conversion to Numeric Format. Convert the dates, in the format specified in the right argument, that are contained in the column whose numer is specified in the left argument, to numeric format (yearmonthday).
.scan	Dyadic	Text Search. Used in selection expressions and conditional expressions to search alphameric columns for a specific word, code, or phrase. The column to the left of the symbol is searched for the word, code, or phrase (enclosed in single quotation marks and prefixed by k) to the right of the symbol. Can only be used in conjunction with across calculation expressions when the symbol appears in a conditional expression.
list or lower-case L	Monadic	List. Column numbers to be printed or displayed are specified to the right of the symbol (use space separator between column numbers). If a conditional expression follows the list of column number, only the selected records are printed or displayed.

Figure 25 (Part 1 of 2). Special Operators

Symbol or Abbrev.	Type	Description
exe	Monadic	Execute APL Command or Expression. The APL system command or valid APL expression that follows the symbol is executed.
m. or me	Monadic	Message Print or display the message (enclosed in single quotation marks) that follows the symbol.
c	Monadic	Comment. Prefix to text (enclosed in single quotation marks) that is imbedded in a user program, but is not executed.
s	N/A	Showif. Same as in selection statements. Produces a list of currently selected row numbers, in their currently sorted sequence. SHOWIF is always in a standalone statement.
k?'prompt'	Monadic	Execution-Time Prompt for a Constant. The right argument is a prompt message (enclosed in single quotation marks) that requests the operator to enter a constant. Program execution is suspended until the operator makes an entry. The operator's entry becomes the value of the constant in the statement where k? appears
Kn'prompt'	Monadic	Execution-Time Prompt for a Constant, with Default Value for a Blank Entry. Same as k? above, except that n = the default value if a blank entry is made to the prompt.

Figure 25 (Part 2 of 2). Special Operators

Symbol	Description
a	Across Prefix to an across calculation expression.
d	Down Prefix to a down calculation expression.
e	Exclude. Prefix to a conditional expression that lists column numbers or rowids/row numbers that are not to store calculation results.
i	Include. Prefix to a conditional expression that lists column numbers or rowids/row numbers in which calculation results are to be stored.
k	Prefix to Any Constant. Used as a prefix to any constant that appears in calculation expressions, selection expressions, or conditional expression. If the constant is nonnumeric, it must be enclosed in single quotation marks.
v	Prefix to a Variable Name. Used as a prefix to the name of any variable that appears in calculation expressions, selection expressions, or conditional expressions. The name of the variable must be enclosed in single quotation marks.
'	Single Quotation Mark. Used to enclose nonnumeric constants, variable names, and rowids that appear in selection expressions, calculation expressions, and conditional expressions.
t	Through Used in calculation expressions to indicate a sequential set of rowids, row numbers or column numbers. First number of sequential set precedes, and last number follows, the t symbol.
=	Store, or Name a Temporary Variable. The number or name that follows the symbol indicates the disposition of the calculation result.
( )	Suspend Normal Left-to-Right Execution Sequence for a compound argument. The result of the calculation inside the parentheses must be obtained before the operator that is outside the parentheses can be applied to the expression inside the parentheses.

Figure 26. Miscellaneous Symbols Used in Computation Statements

EXAMPLES OF CALCULATION STATEMENTS

a1+2=7	(For each record in the file, store in column 7 the result of adding the value in column 1 of the record to the value in column 2 of the record.)
d1-2=7	(For all numeric columns, subtract the value in the record currently designated as row number 2 from the value in the record currently designated as row number 1, and store the difference in the record currently designated as row number 7.)

Notes:

1. Across calculations only specify column numbers.

2. Down calculations only specify row numbers.

ak100*(6/3)=7	(For each record in the file, divide the value in column 6 by the value in column 3, multiply the quotient by a numeric constant of 100, and store the result in column 7.)

Notes:

1. The compound right argument is placed in parentheses because the left-to-right order of execution must be suspended.

a+/1t12=13	(For each record in the file, obtain the sum of the values in columns 1 through 12, and store the sum in column 13.)
a((+/1t4)*(7/6))*k100=12	(For each record in the file, sum columns 1 through 4, and multiply the sum by the quotient produced by dividing the value in column 7 by the value in column 6. The result of the multiplication is then multiplied by a numerical constant of 100, and the final result is stored in column 12.)

Note:

The compound argument is placed in double parentheses because the compound argument in the outer parentheses contains compound arguments within it, and the normal left-to-right sequence of execution must be suspended so that the parenthetical expressions are resolved first.

ENTERING AND EXECUTING CALCULATION STATEMENTS

Note: Refer to the section "Syntax of Statements Entered under CALCULATE and PROGRAM Commands" on page 84 for detailed syntax and format information.

Using the CALCULATE Command

1. Type **CALCULATE.**

2. The ?CA?: prompt appears. Type in a computation statement.

3. If you have no more statements to enter, make a blank entry in response to the next ?CA?: prompt. If there are more statements to enter, go back to step 2.

4. If you did not include an equal sign in the calculation expression, the calculation results are printed or displayed. If an equal sign was included, the calculation results are stored in the data file, but are not printed or displayed.

5. If calculation results were stored in the data file and you want to save the data file with the results included, execute)SAVE in response to the BE SURE TO)SAVE message.

BASIC-LEVEL COMPUTATIONS

This section tells you how to enter and execute computation statements, using the CALCULATE, PROGRAM, COMPUTE, and REPORTS commands. The WHICH command is used to analyze errors that occur during the execution of computation statements.

TASK STEPS

1. You enter computation statements by typing the **CALCULATE** or **PROGRAM** command. Then, in response to prompts, you type in one or more computation statements.

2. If you used the CALCULATE command to enter the computation statements, the computation operations are executed immediately after each statement is entered. The statements are not stored in the application, but the calculation results are stored in the data file.

3. If you used the PROGRAM command to enter the computation statements:

   - You respond to prompts that assign the program a number and an optional name.

   - You type in one or more computation statements.

   - After the last computation statement is entered, the program is compiled, checked, and stored in the application under the assigned program number.

   - Programs existing prior to the execution of the SETDEC command must be re-compiled after completion of the SETDEC command.

4. Programs stored using the PROGRAM command are executed in any of the following ways:

   - Type **COMPUTE** and respond to the prompt by typing in the number of the program to be executed. The computation statements are executed in the sequence that they were stored, and the results are stored in the data file.

   - If program numbers were specified in the setup (stored under SETREPORTS) for a report number, type **REPORTS** and respond to the prompt by entering the number of the report. The programs specified in the setup are executed prior to report generation. The results are stored in the data file.

5. If an error occurs during execution of a program entered under the CALCULATE or COMPUTE command, type **WHICH**. The statement in which the error occurred is indicated.

HIGHLIGHTS

- Two types of programs can be stored under the PROGRAM command:

  - Regular programs, which are performed on all or selected rows of the data file. Across or down computations can be performed.

  - Control Break Programs, which can only be specified in the report setups for regular reports that have control breaks.

    Note: Only across computations are allowed.

The program is executed for each control break in the report, and the computation results appear in the total line for each control break.

- Computation statements can include the following types of expressions:
  - Selection statements of the types described in the section "Selection" on page 77.
  - Calculation statements of the types described in this section.

Using PROGRAM to Enter and Store a New Program

1. Type **program**
2. The ?REGULAR OR CONTROL-BREAK PRGM (R OR C)?: prompt appears. Respond by typing **R** to specify a regular program number, or **C** to specify a control break program number. An information message appears informing you of the number of programs of the selected type that have already been defined.
3. The ?ENTER LIST, PGM NO. OR PGM NO/E TO ERASE?: prompt appears. Respond by typing the next available unused number.
4. The ?NEW PROGRAM...ENTER A NAME?: prompt appears. Respond with a blank entry (no name), or by typing in the name of the program (the name is only for your information when a list of programs is produced). The information message CREATING PGM n appears (n = the number you assigned in step 3).
5. Respond to each ?STATEMENT n?: prompt by entering a computation statement. After all statements are entered, respond to the next ?STATEMENT n?: prompt with a blank entry, and proceed to step 6.
6. The information message PGM n EDITING DONE appears, followed by the ?ENTER YES TO COMPILE PGM n?: prompt. Respond by typing **YES** if you want the program compiled. The information message COMPILING PGM n appears, and when compiling is completed, the message COMPILATION COMPLETE. DONE. appears. Respond to the BE SURE TO)SAVE prompt by executing)SAVE.

Using PROGRAM to Edit or Delete an Existing Program

1. Perform steps 1 and 2 of "Using PROGRAM to Enter and Store a New Program" on the opposite page to enter the PROGRAM command and specify the type (regular or control break) of program being edited.
2. Respond to the ?ENTER LIST, PGM NO. OR PGM NO/E TO ERASE?: prompt by typing one of the following:
   a. If you want a list of program numbers and names, type **LIST** or **L**. The list is produced, and the prompt is repeated.
   b. If you want to delete an existing program, type **N/E**, where n = the number of the program being deleted. When deletion is completed, the PGM n DELETED message appears to confirm the deletion.
   c. If you want to change an existing program, type in the number of the program to be change. Proceed to step 3.

   d. Make a blank entry and go to step 7 to exit the PROGRAM command.

3. The prompt ?TO CHANGE NAME OF PGM n, ENTER A NEW NAME?: appears. If you want to change the name, type in a new name; otherwise, make a blank entry. The information message EDITING PGM n. PGM n HAS i STATEMENTS appears, where i is number of statements in existing program.

4. The prompt ?STATEMENT NO. OR LIST?: appears. Type **LIST** or **L** if you want a listing of the statements in the program. The list is produced and the prompt is repeated. Type the number of the first statement to be changed or deleted, or the number of the statement that is above the point where you want to insert a new statement.

5. The statement whose number (n) you entered in step 4 is printed or displayed. Then, the prompt ?STATEMENT n I,D,C or H?: appears. Respond as follows:

   a. If you want to re-enter the entire existing statement, type in the new statement, and go to step 6.

   b. If you want to delete the entire statement, type **D**. A message appears confirming that the deletion was accomplished. Go to step 6.

   c. If you want to change only a portion of the statement, type **C**. Respond to the ?OLD?: prompt by typing in the portion to be changed. Then, respond to the ?NEW? prompt by typing in the change. Go to step 6.

   d. If you want to insert a new statement below the statement whose number was entered in step 4, type **I**. Respond to the ?STATEMENT n?: prompt by typing in the new statement. Go to step 6.

6. If you want to change another statement, go back to step 4. If there are no more changes, make a blank entry in response to th ?STATEMENT NO. OR LIST?: prompt.

7. Perform step 6 of "Using PROGRAM to Enter and Store a New Program" on page 94 to compile and save the revised program.

Using COMPUTE to Execute a Stored Program

1. Type **compute**.

2. Respond to the ?PGM NO.S OR LIST?: prompt by typing **LIST** or **L** to produce a list. The list is produced, and the prompt is repeated. Select programs to be executed by typing one or more regular program numbers (enter the numbers in the sequence in which you want the programs to execute).

3. The information message EXECUTING PGM n appears, followed by PGM n DONE for each program whose number was entered in step 2. After execution of the last program is completed, the BE SURE TO)SAVE message appears. If you want to save the calculation results that were stored in the data file, execute)SAVE.

Using WHICH to Analyze Errors

If you receive an indication that an error has occurred while a program is being executed under the COMPUTE, REPORTS, or CALCULATE command, you can determine the statement that was being executed when the error occurred by typing **WHICH**. The error-causing statement is printed or displayed. You should analyze the indicated statement and determine what caused the error to occur.

USING VARIABLE DATA IN FILE PROCESSING

This section tells you how to create and use variables in calculation and selection statements.

Variable data provides an added dimension to data processing operations. Variables are easy to create and use. You should investigate their possible uses in your application.

LIST OF SUBJECTS IN THIS SECTION

1. Temporary variables in calculation statements
2. Using an execution-time prompt to enter the value of a constant in a computation statement
3. Indexing look-up tables by their line numbers
4. Indexing tables with the .TLU operator
5. Using business factors in computation statements
6. Using the TROWS and ROWS system-defined variables
7. Using the .DATEVAL operator to convert dates to numeric format
8. Examples

HIGHLIGHTS

- Variables appear in calculation and selection statements in the following form (see Figure 26 on page 91):

  v'varname' where varname is the name assigned to the variable

- Variables include:
  - System-Defined Variables such as ROWS and TROWS.
  - Business Factors created by the BUSFACTS command. A business factor is assigned a unique name, and has a single numeric or alphameric value.
  - Tables of values for numeric or alphameric variables, created by the EDIT command. Each line of the table contains a value. The table is indexed by specifying a line number. The value on the indexed line replaces the table name in any subsequent computation statement.
  - Temporary Variables. are used to assign a name to the result of one calculation statement so that it can be used in another calculation or selection statement. The name of the temporary variable is placed to the right of the equal sign in the calculation statement that defines the storage location of the result which is to be used in another statement.
- The .DATEVAL operator (Figure 25 on page 89) allows you to convert into numeric format the dates in alphameric columns of the data file.

- The .TLU operator (Figure 25 on page 89 lets you match data from a numeric or alphameric data file column against values in a look-up table created by the EDIT command.

- Execution-Time Prompts (Figure 25 on page 89) can be included in calculation and selection statements. The operator is prompted for the value of a numeric or alphameric constant. The value entered by the operator is used in the calculation statement that contains the prompt.

TEMPORARY VARIABLES IN CALCULATION STATEMENTS

A temporary variable is a result or value that is stored in a particular row/column location within the data file You use a calculation statement to compute and store the value of the variable. You then use another calculation statement to assign that storage location a temporary variable name. Once the variable has been defined in the manner just described, you can use the name of the variable as an argument in any succeeding calculation statement. Proceed as follows to name and use the temporary variable:

1. Write a calculation statement that stores the result in a particular row/column location.

2. Define the storage location set up in step 1 as a temporary variable. Use an across statement with the following form:

   A(col. No.) = V'tempvarname' I(row no.)

   Where:

Col. No.	The column number of the result stored in step 1.
Row No.	The row number of the result stored in step 1.
tempvarname	The name you assign to the result.

3. Use the temporary variable name assigned in step 2 as an argument in a calculation statement. At execution time the name of the variable is replaced by the value in the specified storage location within the data file.

Example:

Type **CALCULATE**.

```
?CA?: A5+6=11                     (1)
?CA?: A11=V'TVAR' I2              (2)
?CA?: A9+V'TVAR'=13               (3)
```

Explanation:

Line (1) Add column 5 and column 6 and store the results in column 11.

Line (2) Store the value of column 11, row 2, in the temporary variable called 'tvar'.

Line (3) Add the value from line (2) to column 9 and store it in column 13.

:note: When entering the data mode after using a temporary variable, only one row (in this case, row 2) will be shown. If you wish to see the entire database, use the SALL command.

USING EXECUTION-TIME PROMPT TO ENTER A CONSTANT IN A COMPUTATION

An execution-time prompt in a calculation or selection statement produces the following actions:

- Execution of the stored program stops at the point where the execution time prompt code (Figure 25 on page 89) appears in the program.
- The prompt message specified in the computation statement is printed or displayed at the terminal.

  Note: If the operator's entry is for an alphameric constant, the value should be enclosed in single quotation marks.

- The operator responds to the prompt by typing in a value, or by making a blank entry.
- When the operator-entered value is entered, that value is used in the computation statement in which the execution time prompt appeared, and execution of the program resumes.

You can specify an execution-time prompt with or without a default value. If a default value is included, the default value is used if the operator responds to the prompt by making a blank entry:

Prompt without default value: K?'prompt message'
Prompt with default value: Kn'prompt message'

Where:

K	The prefix indicating that a constant follows
n	The default value
?	Symbol for execution-time prompt without a default value.
'prompt message'	The prompt message that you want to appear, enclosed in single quotation marks

LOOK-UP TABLES

Look-up tables are defined for numeric-to-numeric or character-to-character operations. The tables would be defined with edit to be numeric or character input. A numeric look-up table consists of two columns of numerics: the compare column and the match-selected column. Character look-up tables consist of the same logical two columns of information, but both columns may be concatenated together to form a single character matrix. There are two interfaces for the use of these look-up tables: the .TLU for use with numeric selections, and the TABLE for use with character selections. Both are described in the following paragraphs.

A logical use of this indexing procedure would be under the SETREPORTS command. In the following example, only the prompts that refer to the table are included.

Example:

COMMAND	PROMPT/RESPONSE	
EDIT	?WHAT?: TABLE5	(1)
	?LINE 3?: L. WILSON	(2)
CALCULATE	?CA?: AK3=V'TAB5'	(3)
SETREPORTS	?MORE EDITING OF HEADERS?: Y	(4)
	?ROW 5 FROM COL 0?: C/CONTACT:?T5?	(5)
REPORTS	CONTACT: L. WILSON	(6)

Explanation:

1. Creating TABLE5.
2. Line 3 of TABLE5 contains the name L. WILSON. (there are more lines in TABLE5 besides this one.)
3. Selects line 3 of TABLE5 as the currently indexed value.
4. Indicates that the report has formal headers.
5. Centers the text "CONTACT:" and will replace "T5" with the currently indexed value.
6. Shows in row 5 of the report that "L. WILSON" is the value of "T5."

Note: If "TABLE5" is used instead of "TAB5 " in the calculation statement, line 1 of TABLE5 will become the constant 3 (from K3) and the rest of the lines in TABLE5 will be deleted.

INDEXING NUMERIC TABLES WITH .TLU OPERATOR

Look-up tables created using the EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102) or by other methods can also be indexed by the .tlu operator. To use the .tlu operator, a numeric column of the data file can be compared against the first column of the look-up table. When a match-up is found with the number in the column of the data file and a first column number in the look-up table, the number in the second column of the look-up table is stored in the corresponding row position of the column whose number appears to the right of the equal sign. That is:

A(Col. No. A) .TLU (V'tablename') = (Col. No. B)

Where:

Col. No. A	The data file column number containing the numeric values to be matched against numeric values in the first column of the table
tablename	The name assigned to the look-up table
Col. No. B	The data file column number of a numeric column that is to receive the second column number from the look-up table if a match on the first column occurs. If no match, column B is unaffected.

To use the .tlu operator, the look-up table must be set up as follows:

- The numeric values in column 1 of the look-up table must contain the numeric values to be matched against the numeric values in column A in the data file, and column 2 of the table contains the numeric data to be stored in data file column B when matchup is found.

- Indexing a Table by Matching Row Values in a Column of the Data File - Numeric (Table Look-Up)

  Data file column 1 (numeric with a width of 4) contains the following numbers in rows 1 through 4:

COL 0	COL 1
001	380
002	555
003	123
004	986

The objective is to determine the sub-department numbers for the major department numbers in column 1, and put the corresponding sub-department numbers in column 2. A look-up table (numeric) is created with the EDIT command to perform the translation. This table, named DEPTSUB has the following four entries:

```
DEPTSUB

Line 1:   555 826
Line 2:   380 906
Line 3:   986 222
Line 4:   407 324
```

Note the space between the first and second columns. The first column contains the major department number while the second column has sub-department numbers.

The table is indexed on data file column 1, and the indexed value is stored in column 2, by writing the following statement:

```
ACROSS 1 .TLU V 'DEPTSUB' = 2
```

(The operator .TLU specifies the table look-up operation.)

After execution, the data file contains the following data in column 2 of rows 1 through 4:

COL 0	COL 1	COL 2
001	380	906
002	555	826
003	123	0
004	986	222

Note that no entry was made in row 3 of data file column 2 because the look-up table DEPTSUB does not have an entry for department 123.

INDEXING ALPHAMERIC TABLES WITH TABLE OPERATOR

The table operator is similar in function to the .TLU operator but is used for alphameric data. The entire match up column in the data file can be selected or selected positions in the column may be used for the match. For example, define in calculate or in a program:

```
1?: EXEC 1 3 4 5 7 TABLE 'tablename'
```

Where:

1	Is the alpha column number to match against the table
3 4 5	Are optional positions in column 1 for the match
7	Is the ADRS II column number to put the resolved table data into

- <u>Indexing a Table by Matching Row Values in a Column of the Data File - Alpha (Table Look-Up)</u>

  Data file column 1 (alphameric data column with a width of two characters) contains the following expense report codes in rows 1 through 4:

COL 0	COL 1
001	al
002	b1
003	d5
004	a0

  The objective is to translate these expense report codes to their corresponding noun descriptors, and to store these descriptors in column 2. A look-up table is created with the EDIT command to perform the translation. This table, named EXPCODE, has the following four entries:

  ```
  EXPCODE

  LINE 1:  a0Travel
  LINE 2:  a1Room
  LINE 3:  a2Meals
  LINE 4:  b1Misc
  ```

  Note that the first two characters of each line contain the matchup characters for the two-character-wide data in column 1 and that the remaining characters (no space) contain the code descriptors.

  The table is indexed on data file column 1, and the indexed value is stored in column 2, by writing the following statement:

  ```
  EXEC 1 1 2 2 TABLE 'expcode'
  (the operator TABLE specifies the table look-up operation)
  ```

  After execution, the data file contains the following data in column 2 of rows 1 through 4:

COL 0	COL 1	COL 2
001	al	Room
002	b1	Misc
003	d5	
004	a0	Travel

  Note that no entry was made in row 3 of data file column 2 because the look-up table EXPCODE does not have an entry for code d5. The EDIT command could be used to add code d5, and its corresponding descriptor, to the EXPCODE table.

CREATING INTRODUCTION TO APPLICATION

This section tells you how to create an introduction to an application. If an introduction is stored in an application, the introductory message is printed or displayed each time the application is loaded into the active workspace.

The introductory message can refer the user to additional help messages if more assistance is needed. For example, the introductory message could list the various functions that can be performed by the application, and indicate for each such function the name of a help message to provide more details. The user can then call up the appropriate help message by typing the name specified in the introductory message.

TASK STEPS

1. Use the EDIT command to create the introductory message, referring to "General-Purpose Editing, Using the Edit Command" for details. When the prompt message ?WHAT? appears, type **INTRO**.

2. If one or more help messages are also included, create these messages using the EDIT command, assigning to each such message the name that was specified in the introductory message. Refer to "General-Purpose Editing, Using the Edit Command" for details. When the prompt message ?WHAT? appears, type in the assigned name of the help message.

3. Verify that the introductory and help messages have been correctly entered by saving the application and then loading the application. When the application is loaded, the introductory message should appear immediately after the SAVED information messages. Typing the help message names specified in the introductory message should causes these messages to appear.

GENERAL-PURPOSE EDITING, USING THE EDIT COMMAND

This section tells you how to use the EDIT command to create user-defined look-up tables, command and response strings for use with the EXPRESS mode, and introductions to the application.

The editing procedure is also used to change system-defined variables.

More specific details are provided in other sections for each type of table created or edited using the EDIT command.

Tables can contain either (but not both) numeric or nonnumeric data. Only tables of numeric data can be used in computations. Numeric tables can only contain numbers, decimal points, minus signs, and dollar signs.

TASK STEPS

(See detailed procedure in Figure 74 on page 274.)

1. Type **EDIT**, and respond to the first prompt by typing in the name of the table to be created or edited.

2. If creating a new table, indicate the type of data (numeric or alphameric) that will be contained in the data. Then, respond to the prompts for each line of the table by typing in the information that is to appear on the line. When creating a new table of numeric columns, the number of columns in the first line determines the maximum number of columns for that table. Subsequent entries will be truncated to the maximum of line 1.

3. If you are editing an existing table, or at the completion of line entries for a new table, you are given an opportunity to specify table lines that you want to change or delete, or table lines below which you want to insert new lines.

4. When all editing is completed, exit the EDIT command, and execute)SAVE.

5. To erase an entire table created in steps 1 through 4 above, type **)ERASE**, followed by a space and the name of the table.

HIGHLIGHTS

- Tables created with the EDIT command can be stored in shared files along with the data file by creating a STORELIST (using the EDIT command) that lists the names of the tables that you want stored in shared files (see "Storing, Loading, and Deleting Shared Files" on page 205).

- All table names that are created or modified using the EDIT command are listed by typing **EDITNAMES**.

- Refer to the sections indicated in the following list for more details regarding the use of the EDIT command:

  - Introduction (INTRO) to an application, and help messages that are referenced in the introduction (see "Creating Introduction to Application" on page 101).

  - Tables of commands and response strings for use with the EXPRESS Mode (see "Operating in EXPRESS Mode" on page 194).

  - Look-up tables used in data file processing (see "Look-up Tables" on page 98).

  - Editing system-defined report output controls (see "Setting Up Report Output Controls" on page 248).

  - Look-up tables used in the text of reports (see "Using Variable Data in Text" on page 135).

STEP NO.		
1	Type **EDIT**	Proceed to step 2.
2	PROMPT MESSAGE:	?WHAT?
	YOUR RESPONSE:	Type in the name of the table to be edited or created. Proceed to step 3.
3		If you typed the name of an existing table, proceed to step 5.
		If you typed the name of a new table to be created, proceed to step 4.
4	PROMPT MESSAGE:	?NUMERIC OR CHARACTER DATA (N OR C?:
	YOUR RESPONSE:	Type **N** (numeric data) or **C** (nonnumeric data). Proceed to step 5.
5	PROMPT MESSAGE:	?LINE n? (n = next sequential line number, starting with 1)
	YOUR RESPONSE:	Respond to each of these prompts by typing in in contents of the line. After all lines are entered, make a blank entry to the next prompt. Proceed to step 6.
6	PROMPT MESSAGE:	?LINE NO. OR LIST?:
	YOUR RESPONSE:	If you want a list of the contents of the lines of the table, type **LIST**. The list is produced, and the prompt is repeated.
		If you have no further editing to perform, make a blank entry to exit the editing routine. Respond to the reminder message BE SURE TO)SAVE by saving the application.
		If you want to change, insert, or delete data, type in the line number on which the change is to be made, or the line number below which new line is to be inserted. Proceed to step 7.

Figure 27 (Part 1 of 2). Creating and Editing a Table

STEP
NO.

7 PROMPT MESSAGE: ?LINE n I,D, C OF H?:

YOUR RESPONSE: Do one of the following, as applicable:

a. If you want to change the entire line, type in the new version. Return to step 6.

b. If you want help, type **H**. A listing defining the the I, D, C, and A editing subcommands appears, and the above prompt is repeated.

c. If you want to delete an existing line, type **D**. An information message appears confirming that the deletion is accomplished. Return to step 6.

d. If you want to insert a new line below the line number that appears in the prompt, type **I**. The next prompt requests you to enter the data for the new line. You can create up to 9 insert lines below each originally numbered line. Return to step 6.

e. If you want to change a word or phrase or number, type **C**. You are informed of the current contents of the line. Then, the following prompts appear:

?OLD?: Type in the word, number, or phrase to be changed.

?NEW?: Type in the change.

Return to step 6.

f. To make a global change (same change on two or more lines, type **C,OLDDATA,NEWDATA,LINE NO.S** where olddata = the data to be changed, newdata = the change, and the line No.s = the lines to be changed. Return to step 6.

g. If you want to repeat the previously entered edit subcommand, type **A**. Return to step 6.

h. Type **EDITNAMES** to get a list of what you have created under the EDIT command.

Figure 27 (Part 2 of 2). Creating and Editing a Table

USING THE BUSFACTS COMMAND TO CREATE BUSINESS FACTORS

A business factor is best described as variable data used in stored report setups and stored computation programs. It can include such items as the name of a report preparer, a date, or a classification level, all of which might appear in the text of a report, but which may vary each time the report is prepared. Business factors also include such items as unit cost figures, overhead percentages, or sales tax percentages that might appear in stored computation programs, but which also may vary with changes in business conditions.

The use of business factors allows you to change such variables at report generation time without having to change the stored report and computation setups. Instead, the stored report setups and stored programs identify these business factors by unique names. At execution time, the name of the business factors are replaced by their current values, which can be easily changed using the BUSFACTS command.

A business factor can either numeric or nonnumeric. Only one value at a time can be assigned to a business factor. Only numeric business factors can be used in stored programs or other computations. Numeric factors can contain only numbers, decimal points, minus signs, and dollar signs.

TASK STEPS

1. Type **BUSFACTS**.

2. You can respond to the prompt messages and perform any of the following operations:

   - Obtain a complete list of business factor names and their current values.

   - Create a new business factor by entering a new (and unique) name, and an initial value, and designating the value as being numeric or non numeric.

   - Check the value of an existing business factor by entering its name.

   - Change the value of an existing business factor by entering the assigned name, and a new value.

   - Delete an existing business factor.

STEP NO.		
1	Type **BUSFACTS**	Proceed to step 2.
	INFORMATION MESSAGE:	ENTRY SEPARATOR IS: ___(indicates current entry separator)
2	PROMPT MESSAGE:	?BF?
	YOUR RESPONSE:	Make a blank entry if you are not creating a new business factor. Proceed to step 3. If you want to create a new business factor, type the name and the value in the following format: For a numeric business factor: **NAME,N,VALUE** Proceed to step 3. For a nonnumeric business factor: **NAME,VALUE** Proceed to step 3.
3	PROMPT MESSAGE:	?BF OR DEL?:
	YOUR RESPONSE:	Make a blank entry if there are no more business factors being created, changed, or deleted. Proceed to step 4. If you want to create another new business factor, respond exactly as described in step 2. The ?BF OR DEL?: prompt is then repeated. If you want to check the value of an existing business factor, type the name of the business factor to be checked. The information message IS: (value) appears. The ?BF or DEL?: prompt is then repeated. If you want to delete an existing business factor, type **DEL**. Proceed to step 4.

Figure 28 (Part 1 of 2). Using the BUSFACTS Command

STEP <u>NO</u>.		
4	PROMPT MESSAGE:	?NAMES TO DELETE WITH , BETWEEN?:
	YOUR RESPONSE:	Type in the name of one or more business factors that you want to delete, using a comma as a separator between each name. The information message DELETED : (names of deleted business factors) appears. Return to step 3.
5	PROMPT MESSAGE:	n BFS ESIXT, LIST?: (n = number of business factors currently defined.
	YOUR RESPONSE:	Make a blank entry if you do not want a list of the business factors. If you want a listing, type **LIST**. The list is produced.
6	PROMPT MESSAGE:	If you want to create, change, or delete more business factors, type **Y**. Return to step 3. If there are no more business factors to be created, changed, or deleted, type **N**. Proceed to step 7.
7	PROMPT MESSAGE:	?DONE. LIST BFS?:
	YOUR RESPONSE:	If you want a listing of business factors, type **LIST**. If you do not want a list, make a blank entry. Proceed to step 8.
8	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE.

Figure 28 (Part 2 of 2). Using the BUSFACTS Command

USING BUSINESS FACTORS IN COMPUTATION

Business factors are created using the BUSFACTS command (see the section "Defining a New Application" on page 25). You create a business factor by assigning it a name, and by entering the current value of the factor. The value can be changed as required. You can specify a business factor as an argument in any calculation or selection statement by enclosing the assigned name in single quotation marks, and prefixing with a v:

V'busfactname'

At execution time, the name of the business factor is replaced by its current value.

- <u>Using a Business Factor</u>

```
    ACROSS V'OTRATE2' * 14 = 15
```

The currently entered value of business factor <u>otrate2</u> (overtime rate No. 2) is multiplied by the number of hours in column 14, and the result is stored in column 15.

USING ROWS AND TROWS SYSTEM-DEFINED VARIABLES

- During execution of the REPORTS command for a regular report with control breaks, the ADRS II program computes the number of selected rows in each control break, and assigns this number to the system-defined variable ROWS.
- During execution of the REPORTS command for any regular report, the ADRS II program computes the total number of selected rows (records) in the report, and assigns this number to the system-defined variable TROWS.
- You can specify TROWS as an argument in any stored regular program whose number is specified as part of the preprocessing print option. You can also specify TROWS as an argument in any control break program.
- You can specify ROWS as an argument in any control break program.
- Specify the variables ROWS and TROWS in calculation statements as follows:
  - **V'ROWS'**
  - **V'TROWS'**
- <u>Using the ROWS and TROWS System Variables in Control Break Programs</u>

  ```
  ACROSS 4 * K0 + V'ROWS'/V'TROWS' * K100 = 4
  ```

  This is a control break program to calculate the percentage of the total rows contained in each control break. The percentage value is stored in column 4. The expression 4 * K0 is a nonsense column reference (it is multiplied by 0) required to meet the syntax requirement that a column number reference must appear to the left of the equal sign.

USING DATEVAL OPERATOR TO CONVERT DATES TO NUMERIC

The .dateval operator converts dates in alphameric columns of the data file to the equivalent numeric value, in the format yymmdd. For example, the date 11/15/79 would be converted to the number 791115.

The left argument of the calculation expression containing the .dateval operator specifies the alphameric column number that contains the dates to be converted, and the right argument specifies the format in which those dates exist within the column. The calculation statement for converting dates has the following format:

A(Col. No. A) .DATEVAL K'mm/dd/yy' = Col. No. B

Where:

Col. No. A	The column number containing the dates to be converted
Col. No. B	The column number that is to store the converted dates
mm/dd/yy	The format in which the dates in Col. No. A are stored (if not in month/day/year format, change the sequence of the mm, dd, and yy codes to match the format in which the dates are stored in Col. No. A)

STORING REPORT SETUPS USING SETREPORTS

If the same report is generated repetitively at periodic intervals or on an as-required basis, the complete setup for the report should be stored in the application, using SETREPORTS. Types of reports that can be set up include:

- Regular reports (with and without control breaks)
- Patterned spreadsheets
- Folded repeating patterns (mailing labels, for example)

LIST OF TASKS

(Refer also to the task selection guide (Figure 29 on page 111))

1. Overview
2. Setting up or changing the report name and column specifications
3. Creating, copying, and editing formal headers, titles, group indications and footnotes
4. Erasing all report specifications

Note: Detailed coverage in this section is limited to Report options 1, 2, 3, 4, 7, and 8, which are common to all types of reports.

Refer to the section "Selecting and Using Print Options in Regular Reports" on page 126 for coverage of print options (report option 5) used in regular reports.

Refer to the section "Setting Up Patterned Reports" on page 145 for coverage of patterned reports (report option 6)

HIGHLIGHTS

- You create a new report setup by assigning a number and name to the report, specifying the arrangement of the data file columns to appear in the report, and utilizing the applicable report options.

- You modify an existing report setup by specifying the report number, and selecting the report options where changes or additions are to be made.

- Selection of a report option produces a series of prompts requesting you to enter the required setup information stored under the option.

- Variable data can be included in the text of reports. At report generation time, the variable data is printed in the desired text positions. See the section "Using Variable Data in Text" on page 135 for more details.

- Control breaks can be set up in regular reports. See the section "Predefining Regular Reports with Control Breaks" on page 139 for more details.

- Format Elements of the report include the following in the sequence listed:

  Note: All of the listed elements are not necessarily included in every report.

  - Report Title

  - Formal Headers containing headers over groups of columns and the column headers for the individual columns.

- Body of the report, which may contain control breaks with group indication titles, subtotal lines, and control break footnotes.
- Footnotes or page number/date stamp at the bottom of each page
- Grand Total line at end of report.

REPORT OPTION NO.	OPTION NAME	DESCRIPTION	TASK OR PAGE NO.
1	FORMAL HEADERS*	Allows you to set up, edit, or copy the following elements above the body of the report a. Title b. Headers over groups of related columns c. Column Headers	Task 3
2	TITLE SECTION*	Allows you to set up, edit, or copy a separate title section	Task 3
3	GROUP INDICATION*	Allows you to set up, edit, or copy group indication titles or control breaks.	Task 3
4	FOOTNOTES*	Allows you to set up, edit, or copy footnotes at the bottom of the page or at control breaks.	Task 3
5	PRINT OPTIONS FOR REGULAR OUTPUT	Allows you to select print options for regular reports.	126
6	PATTERNED OUTPUT	Allows you to set up patterned reports	145
7	ERASE ALL REP SPECS	Allows you to delete a report setup in its entirety	Task 4
8	CHANGE REP NAME AND/OR COLUMN NUMBER FORMAT	Allows you to change the initially established report name and initially established column arrangement and spacing of the report.	Task 2

* If you want to borrow a formal header, title, footnote, or group indication, refer to the section "Selecting and Using Print Options in Regular Reports" on page 126.

Figure 29. Task Selection Guide

TASK 1: OVERVIEW

This task provides you with an overview of the tasks involved in setting up a report under the SETREPORTS command.

The task selection guide (Figure 29) lists the eight report options available under SETREPORTS. These options allow you to make any of the setups that are within the capabilities of SETREPORTS.

Also included in this task are a job flow diagram (Figure 30 on page 113) and a listing of the key SETREPORTS prompting messages (Figure 31 on page 114).

Task Steps

1. Type **SETREPORTS**

2. Respond to the ?REPORT NO.?: prompt by typing in the number of a report. If the NEW REPORT information message appears, proceed to step 3. If the REPORT EXISTS information message appears, proceed to step 4.

3. Perform task 2 in this section. At the end of this task, the prompt message ?WANT FORMAL HEADERS?: appears. If you want formal headers, perform task 3 in this section, and proceed to step 5. If you don't want formal headers, proceed directly to step 5.

4. The ?REP OPTIONS OR LIST?: prompt appears. If you want a list, type **LIST**. A listing of the report options is produced. To select report options, type in the option numbers (space between each number). Refer to the task in this or another section, as indicated in the task selection guide (Figure 29 on page 111), to make entries under each selected option. When you have completed the entries for all selected options, proceed to step 5.

5. The prompt message ?CONTINUE TO WORK ON REP?Y/N: appears. If you want to continue type **Y**, and proceed to step 4. If you don't want to continue, type **N**. The information message BE SURE TO)SAVE appears. Respond by saving the application.

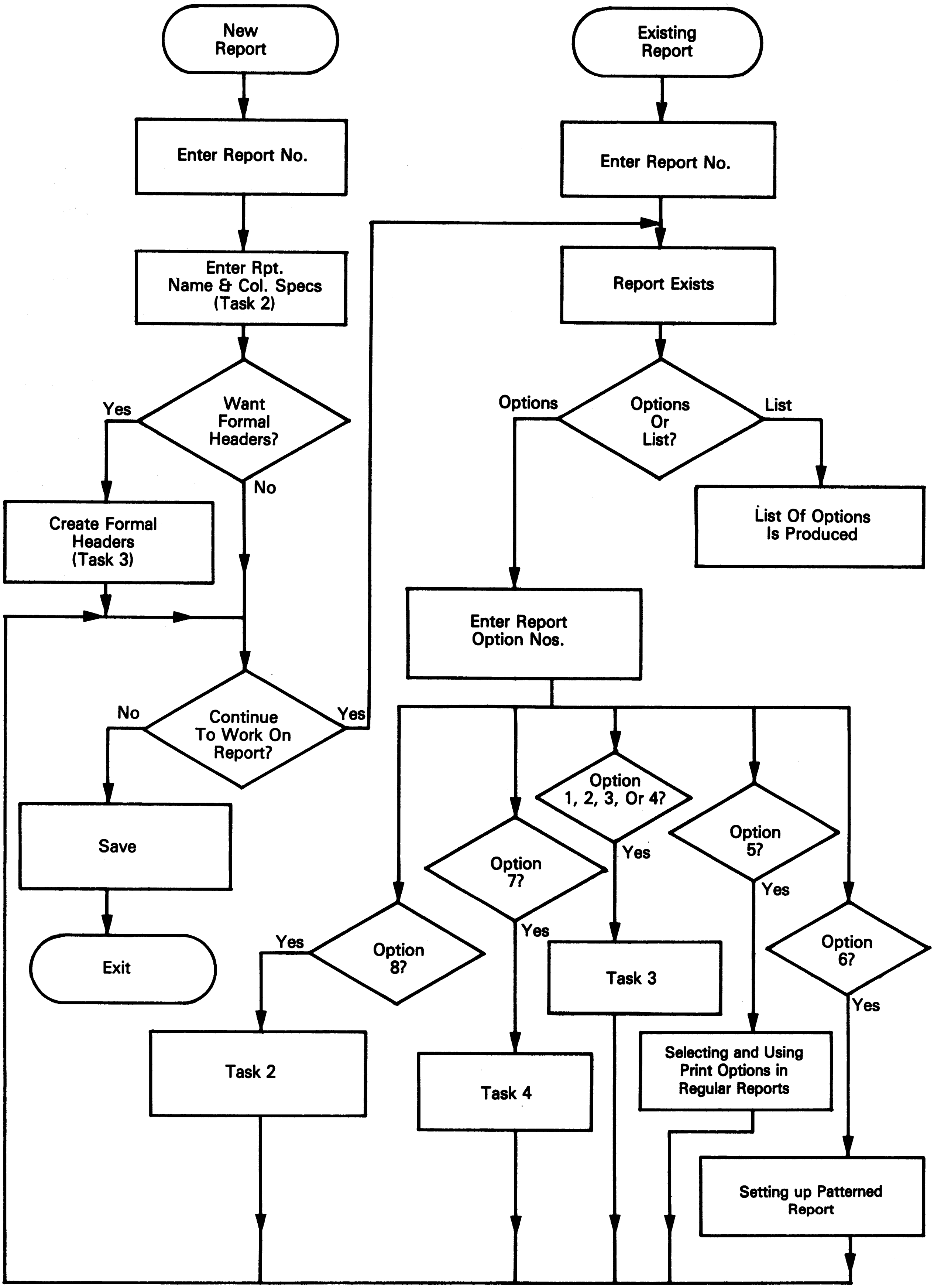

New Report
Enter Report No.
Enter Rpt. Name & Col. Specs (Task 2)
Want Formal Headers?
Yes
No
Create Formal Headers (Task 3)
Continue To Work On Report?
No
Yes
Save
Exit
Existing Report
Enter Report No.
Report Exists
Options Or List?
Options
List
List Of Options Is Produced
Enter Report Option Nos.
Option 1, 2, 3, Or 4?
Yes
Task 3
Option 7?
Yes
Task 4
Option 8?
Yes
Task 2
Option 5?
Yes
Selecting and Using Print Options in Regular Reports
Option 6?
Yes
Setting up Patterned Report

Figure 30. SETREPORTS Job Flow

PROMPT NO.	MESSAGE	
1	PROMPT MESSAGE:	?REPORT NO.? Demand for you to enter enter a report number
	RESPONSE:	Type in the report number. If you enter the number of existing report, Prompt 4 appears next. If you enter the number of a new report, the NEW REPORT message appears. Proceed to Task 2. At the completion Task 2, Prompt 2 appears.
2	PROMPT MESSAGE:	?WANT FORMAL HEADERS? Y/N: Appears at completion of Task 2 for a new report. Requests you to indicate whether you want to include formal headers in the report.
	RESPONSE:	Type **Y** or **N**. If you type **N**, Prompt 3 appears. If you type **Y**, proceed to Task 3. At the completion of Task 3, Prompt 3 appears.
3	PROMPT MESSAGE	?CONTINUE TO WORK ON?: Requests you to indicate whether you want to continue working on report, number n.
	RESPONSE:	Type **Y** or **N** If you type **N**, Prompt 5 appears next. If you type **Y**, Prompt 4 appears next.
4	PROMPT MESSAGE:	?REP. EXISTS. REP OPTIONS? Informs you that the report number typed in response to Prompt 1 exists, and requests you to enter the report option numbers you wish to use (see task selection guide, Figure 29).
	RESPONSE:	If you want a list of report options that are available, type L. In this case, the list of options is produced, and Prompt 4 is repeated. You may select one or more report options by typing in the option numbers. If you are selecting more than one option, separate each option number by a space. After work on all selected options has been completed, Prompt 3 will appear.
5	MESSAGE:	BE SURE TO SAVE This is the exit from SETREPORTS.
	RESPONSE:	Type **)SAVE** if you want to save the report setup.

Figure 31. Prompt Messages for SETREPORTS Overview

TASK 2: SETTING UP/CHANGING REPORT NAME AND COLUMNS

For a new report, you perform this task immediately following the NEW REPORT information message produced when you type the report number (see task 1).

For an existing report, this task is performed when you want to change the report name or the column specifications by selecting report option

8, in task 1. (Refer to Figure 32 on page 116 for prompting messages and responses.)

Task Steps

1. Enter the new report name or change the existing name, if required.
2. If you are copying the column specifications from another report, enter the number of the report whose column specifications you want to copy. The copied column specifications are presented, and you are given the option to redo the copied specifications.
3. If you want to enter, change, or redo column specifications for a new or existing report, type in the column specifications, including:
   - Spacing (if any) before the first column.
   - Uniform spacing (standard is one space) between columns.
   - Uniform spacing overrides when non-uniform spacing between adjacent columns is used.
   - Column numbers you want to appear in the report, entered in the left-to-right sequence that you want them to appear.
4. The ?WANT FORMAL HEADERS? Y/N: prompt appears:
   a. If you want formal headers, type **Y** and proceed to task 3.
   b. If you don't want formal headers, type **N** and refer back to task 1.

HIGHLIGHTS

- Column specifications define the format of the body of the report.
- The syntax for column specifications is identical to that give in the section "Using LIST Command to Generate Simple Reports" on page 70 for the LIST command.
- The report name is optional. If you enter a name, it allows you to specify the name rather than the report number when you initiate generation of the report using the REPORTS command.

STEP NO.		
1	PROMPT MESSAGE:	?ENTER NAME IF DESIRED?:
	YOUR RESPONSE:	Type in new name, or change existing name of report. Make a blank entry if there is no name, or if there is no change to existing name. If you are creating a new report, go to step 2. If you are using report option 8 (existing report), go to step 4.
2	PROMPT MESSAGE:	?OTHER REP NO. IF COPYING COL NO. SET?:
	YOUR RESPONSE:	If you don't want to copy, make a blank entry and proceed to step 3. If you want to copy, type in report number whose column specifications are being copied. Proceed to step 4.
3	PROMPT MESSAGE:	?COL NO.S?: or ?MORE COL NO.S?: (?MORE COL NO.S?: appears following the information message below if you do not type a period after the last character of the column specifications.)
	YOUR RESPONSE:	If no change to specifications, make blank entry. Proceed to step 5. If entering new specifications or changing existing specifications, refer in new or modified specifications. Type a period after last specification character if you want to suppress ?MORE COL NO.S?: prompt.

Figure 32 (Part 1 of 2). Setting Up/Changing Report Name/Columns Procedure

STEP NO.		
	INFORMATION MESSAGE:	REP IS n CHARS WIDE. i LEFT (chars used = n, chars left = i).
	INFORMATION MESSAGE:	COL FORMAT FOR REP n IS: (column specification data) (you are informed of the existing or copied specifications).
	PROMPT MESSAGE:	?WANT TO REDO?: (you are given the option to change the specifications).
	YOUR RESPONSE:	If you want to change the column specifications, type Y. If you are not copying specifications from another report, the information message shown below will appear. If you don't want to change the column specifications, type N and go to step 5.
	INFORMATION MESSAGE:	NOTE: IF ORDER OF COL NO.S IS CHANGED, OR DIFFERENT COL NO.S USED, ERASE AND REWRITE ANY EXISTING FORMAL HEADERS, FTNTS, TITLES, GRP IND, AND CONTROL BREAK PGM FOR REP n. (This message appears only if you are changing specifications using report option 8 for an existing report. A blank entry in step 3, or limiting the changes to the spacing between columns, will avoid the problem).
5	PROMPT MESSAGE:	?WANT FORMAL HEADERS?:
	YOUR RESPONSE:	If you want formal headers, type Y and proceed to task 3. If you don't want formal headers next, type N, and refer back to task 1.

Figure 32 (Part 2 of 2). Setting Up/Changing Report Name/Columns Procedure

TASK 3: MANAGING FORMAL HEADERS, TITLES, GROUP INDICATIONS, AND FOOTNOTES

This section tells you how to create, copy, and edit the text for formal headers, titles, group indications, and footnotes. Task 1 tells you how to select the report options for these operations. The section "Predefining Regular Reports with Control Breaks" on page 139 tells you how to use group indications and footnotes in regular reports with control breaks.

Task Description

Text can be copied from another report or can be typed in on a line-by-line basis, starting from the top down. Each line can contain one or more text segments. Each text segment is preceded by code elements for defining the positioning of the segment on the line. Code elements are also used to create blank lines, and lines of underlining characters. The code elements for these functions are explained in the section "Text Segment Specifications." (Refer also to Figure 33 on page 120 through Figure 36 on page 124.)

- Copying procedure. Use this procedure when you are copying formal headers, titles, or group indications from another report, and yo have selected report option 1, 2, or 3 in task 1, or you responded yes to the ?WANT FORMAL HEADERS? prompt at the end of Task 2.

- Creating formal headers. Use this procedure if you are not copying the headers from another report and: (1) you responded yes to the ?WANT FORMAL HEADERS? prompt at the end of task 2, or (2) you selected report option 1 in task 1.

- Creating titles, group indications, and footnotes. Use this procedure if you are not copying text from another report and you selected report option 2, 3, or 4 in task 1.

- Editing Procedure. Perform this procedure at the completion of any of the other three procedures.

Highlights

- If formal headers are not used, the standard column headers print automatically unless they are suppressed in the print options.

- Report title can be included in formal headers (first line) if title section option 2 is not used. If title option is used, the text appears above the formal headers only when you want to copy, borrow, or change one without affecting the other.

- Group indications are limited to one line per level of control breaks.

- If footnotes are used at the bottom of the page, they replace the page number and date stamp set up by the SETPAGE command.

- Variable names can be embedded in the text. During report generation, the variable name is replaced by its value. See the section "Generating Predefined Reports Using REPORTS Command" on page 167

- Text can be:

  Justified left or right on the page margin or a column.

  Centered on the page over a column, or over a set of adjacent columns.

  Indented any desired number of character positions from the left page margin

  Underlined with any desired character.

Text Segment Specifications

- Three types of specification codes are used, with the codes separated by a slash character (/) from the text segment or underline character being specified:
  - Code elements for positioning text (1, 2, and 3 below)

  - Code elements for specifying underlining of text on the preceding line (4 below)
  - Blank lines (5 below)

- Three types of specification codes cannot be mixed on the same text line, but two or more text segments using the same type of code can appear on the text line.
- When two or more text segments are entered on the same text line, use a separator character (normally a comma) between text segments.

Code	Requirement
1. Centering Text (text = text material being centered)	
c/text	Center text on a page
text, text, text	Center headers over individual adjacent columns, starting with leftmost column. Side-by-side commas skip over columns, leaving them blank.
Col. No./text	Center a text segment over a single column
C3 7/text	Center a text segment over a group of adjacent columns. In this case, the text is centered over columns 3 through 7.
2. Justifying Text (text = text material being justified)	
l/text	Left-justify text on the page
r/text	Right-justify text on the page
lC/text	Left-justify text on a column (C = column number)
rC/text	Right-justify text on a column (C = column number)
3. Positioning text	
pn/text	Position n character positions from left margin
4. Underlining (char = underline character being used. If none is specified, dashes are used)	
u/char	Underline an entire line
uh/char	Underline column headers, showing actual column widths
uC/char	Underline text over a single column (C = column number)
uC1 C2/char	Underline text over a group of adjacent columns (C1 = left-most column number of group, and C2 = right-most column number of group)
5. Blank Line	
b/	Insert blank line

STEP NO.		
1	PROMPT MESSAGE:	?OTHER REPORT NO. IF COPYING.......?: (the message indicates headers, title, or group indication as applicable)
	YOUR RESPONSE:	Enter number of report being copied from and proceed to step 2.
2	PROMPT MESSAGE:	? n ROWS OF ....EXIST. ERASE Y/N: (the message indicates headers, title, or group indications as applicable).
	YOUR RESPONSE:	Type one of the following: a. Y if erasing rows. Proceed to step 3. b. N if leaving all copied rows. Proceed to step 4.
3	PROMPT MESSAGE:	
4	NO MESSAGE	Proceed to the Editing Procedure (Figure 36 on page 124).

Figure 33. Copying Procedure

STEP NO.		
1	PROMPT MESSAGE:	?OTHER REPORT NO. IF COPYING.......?: The message indicates titles or group indications as applicable.
	YOUR RESPONSE:	Blank Entry. Proceed to step 2.
2	INFORMATION MESSAGE:	...START ......(rep. opt.) FROM ROW 1 The message indicates titles, group indications or footnotes, as applicable. You enter the text from the top line (row 1) down.
	PROMPT MESSAGE:	?ROW n FROM COL. c?: This prompt repeats after each line of text is entered until you make a blank entry. The prompt tells you the row number (n) on which text will be entered, and the left- most column number (c) in the report.
	YOUR RESPONSE:	Enter the specification codes and text segments that you want to appear on each line, starting with the top line. Enter the data for one line at a time, and wait for the prompt to be repeated to enter the next line. Make a blank entry in response to the prompt that appears after the last line of text has been entered Proceed to the editing procedure (Figure 36 on page 124).

Figure 34. Creating Titles, Group Indications and Footnotes

STEP NO.		
1	PROMPT MESSAGE:	?OTHER REPORT NO. IF COPYING HEADERS?:
	YOUR RESPONSE:	Blank Entry and proceed to step 2.
2	PROMPT MESSAGE:	LIST THE n ROWS OF COLUMN HEADERS? Y/N: (n is the total number of lines of column headers in the data file setup.)
	YOUR RESPONSE:	Type one of the following and proceed to step 3: a. If you want the column headers o be listed (with row numbers assigned), type **Y**. The list is produced. b. You should type **N** only if you are certain of the row number associated with each line of column headers.
3	PROMPT MESSAGE:	?ROW NUMBERS TO USE IN FORMAL HEADERS?: (This prompt is requesting you to enter the row numbers of the lines of the column headers that you want to appear in the formal headers.)
	YOUR RESPONSE:	List the row numbers of the column header lines you want to appear in the formal headers and proceed to step 4. The list of row numbers must be in sequence, starting with the lowest row number you want to include. You can use **T** to indicate through. Example: **2T6** means columns 2 through 6. If you do not want the column headers in the formal headers, respond to the prompt with a blank entry. You can then create new column headers in
4	INFORMATION MESSAGE:	START ADDITIONAL ROWS ABOVE COL NAMES FOR HEADERS FROM ROW 1 (This message informs you that any additional text that you enter in response to the next prompt will appear above the column header rows selected in step 3, starting from the top line down. The row numbers for the column headers will be renumbered so that they begin with the row number that follows the last line of text entered above the headers.)

Figure 35 (Part 1 of 2). Creating Formal Headers

STEP NO.		
	PROMPT MESSAGE:	?ROW n FROM COL C?: (This prompt repeats after each line of text is entered until you make a blank entry. The prompt tells you the row number (n) on which text will be entered, and the left-most column number (c) in the report.)
	YOUR RESPONSE:	Enter the specification codes and text segments that you want to appear on each line above the column headers. Enter the data for one line at a time, and wait for the prompt to be repeated to enter the next line. Make a blank entry in response to the prompt that appears after the last line of text has been entered. Proceed to step 5.
5	INFORMATION MESSAGE:	NOW n HEADER ROWS (total number (n) of rows, including column headers.
	INFORMATION MESSAGE:	THE n ROWS OF COL HDRS NOW r n (tells you the new row numbers for the column headers.
	YOUR RESPONSE:	Proceed to the editing procedure (Figure 36 on page 124).

Figure 35 (Part 2 of 2). Creating Formal Headers

STEP
NO.

1 PROMPT MESSAGE: ?EDITING: ROW NO. OR I/N OR D/N OR LIST?:

YOUR RESPONSE: Select and enter one of the following:

a. Blank Entry if no editing is required. Proceed to step 4.

b. List **L**. A listing is produced of each row of text, with all coding, separators, variable names, etc. Proceed to step 2.

c. List Resolved **LR**. A listing is produced showing the text exactly as it will appear in the report, with text positioned, underlining accomplished, and variables resolved (if variables exist). Proceed to step 2.

d. List/Resolved **L/R**. Same as item c, except character position numbers appear above first row of text.

e. **R** (Row Number). Type the number of the row of text you want to change, or the number of the row below the last line of text if you want to add a line of text at the bottom.

f. **I/R.N** if you want to insert a line below row r. The number n to the right of the decimal point can be any integer. Proceed to step 3.

g. **D/R** if you want to delete the text in row r. The ROW r ERASED message appears. Return to step 1.

Figure 36 (Part 1 of 2). Editing Procedure

STEP NO.		
2	PROMPT MESSAGE:	?MORE EDITING OF ....? Y/N
	YOUR RESPONSE:	Type one of the following: a. Y if more editing is required. Return to step 1. b. N if you are finished editing. Proceed to step 4.
3	PROMPT MESSAGE:	?ROW r FROM COL. c?: Row r is the row number that you specified in step 1e or 1f. Col c is the leftmost column in the report.
	YOUR RESPONSE:	You are changing an existing row of text, or inserting or adding a new line. Type in the codes and text for the line as you want it to appear. Return to step 1.
4	INFORMATION MESSAGE:	..........DONE
	YOUR RESPONSE:	You have exited the edit operation and are ready to select another report option. Refer back to task 1.

Figure 36 (Part 2 of 2). Editing Procedure

TASK 4: ERASING ALL REPORT SPECIFICATIONS

For an existing report, you perform this task to erase all report specifications that pertain to the report number. This action deletes the report in its entirety from the application.

Respond to prompt as follows:

a. If you do not want to erase all specifications, respond N to the prompt.

b. If you want to erase all reports specifications, respond Y to the prompt.

In either case, you return to task 1.

Highlights

- Deletes from the application anything directly associated with a particular report, including print options, footnotes, formal headers, title section, group indication, report name and number, and, if it is a patterned output, the print pattern.

- If you call this option by mistake, note that you have not erased the report specifications until you respond affirmatively to the prompt.

SELECTING AND USING PRINT OPTIONS IN REGULAR REPORTS

This section tells you how to select and use print options in regular reports. During execution of SETREPORTS, you must specify report option 5 to select print options. Then, you select the print options to be used, and enter the required information (if any) for each selected option.

Print options are not used with patterned reports (report option 6).

TASK STEPS

1. Select print options by typing 5 in response to ?REP n EXISTS. ENTER REP OPT. NO. 8 OR LIST?:

2. If print options are already specified, ?ERASE EXISTING PRINT OPTIONS? Y/N: appears. Type **Y** if you want to erase all print option settings and start over; otherwise, type **N**.

3. ?PRT OPT. NO.S OR LIST?: appears. Type **LIST** or **L** to obtain the list of print options. To specify print options, type in the numbers of the options that are to be included in the report setup. Enter a space between each option number that is listed.

4. Print options are worked on in numerical sequence, starting with the lowest option number specified in step 3. Respond to any prompt messages for the selected options (details are provided in the following sections).

5. When you have completed work on the selected options, return to the section "Storing Report Setups Using SETREPORTS" on page 110, task 1 to select the next report option, or to exit from SETREPORTS.

OPTION HIGHLIGHTS

OPT. NO.	DESCRIPTION
1.	PREPROCESSING. You specify sorting operations and stored program numbers for execution at report generation time.
2.	LIST. Automatically on if option 3 is not selected. Must be turned off to select option 3. Produces a regular report without control breaks. Can be used with print options 1, 4, 8, and 9.
3.	CONTROL BREAKS. Turned off if option 2 is selected. If LIST is off and you select option 3, you specify the column numbers for the control breaks. See the section "Predefining Regular Reports with Control Breaks" on page 139 for more details. Options 5, 6, 7, and 10 are associated exclusively with control breaks, and are fully described in the section "Print Options Used with Control Breaks" on page 131.
4.	TOTALS. You select the numeric columns for which totals are required. Produces a grand total at end of report, and (if option 3 is selected) totals at each control break.
8.	NO HEADERS. If formal headers (report option 1) are not included, column headers are automatically printed unless this option is selected.

9. BORROWING. Allows you to borrow titles, formal headers, group indications, and footnotes from other reports. The borrowed text cannot be altered.

CHANGING PRINT OPTION SELECTIONS

Settings are entered under print options 1, 3, 4, 5, 7, and 9 when these options are selected. Subsequently, you can respond to the ?PRT OPT. NO.S OR LIST? prompt message by changing the previous listing of print options to exclude some options for which settings were previously entered. In this case, the previously entered settings for the omitted options are not lost, and you can subsequently respecify the print option and retain the existing settings.

For example, you may make a setup for a report that includes option 3 (control breaks) and one or more of the options (5, 6, 7, and 10) associated with control breaks. If, for some reason, you wanted to generate a list-type report from this setup (no control breaks), you could specify the LIST option (option 2) and any of its associated options (1, 4, 8, 9) and omit options 3, 5, 6, 7, and 10. The settings made under options 3, 5, 6, and 7 would be preserved, even though these options were omitted when the list-type report was produced.

USING LIST, TOTALS AND NO HEADERS OPTIONS

- Prompts and responses for these options are shown in Figure 37 on page 128.
- If the LIST option (option 2) is on, options 3, 5, 6, 7, and 10 cannot be selected. In this case, a regular list report without control breaks is generated. You can use options 1, 4, 8, and 9 with the LIST option.
- If you select the TOTALS option (option 4), you will be asked to indicate the numeric columns to be included in, or excluded from, the totals (totals are automatically off for all alphameric columns). You can select the numeric columns where totals will appear in any of the following ways:
  a. If you want totals on for all numeric columns, do not list any columns (make a blank entry).
  b. If there are fewer columns to be included than there are columns to be excluded, type I followed by the list of column numbers for which you want totals. Totals are only produced for the listed columns.
  c. If there are fewer columns to be excluded than there are columns to be included, type E followed by the list of column numbers for which you do not want totals. Totals will be produced for all numeric columns that are not listed.
- The TOTALS option must always be selected if option 6 (SUMMARY) is on, or if you select option 3 (CONTROL BREAKS) and you want totals for each control break.
- If formal headers are included in the report, option 8 (NO HEADERS) has no effect. If formal headers are not included and you want the column headers to be printed (option 8 off) without column numbers, prefix the column specifications with N if you want to suppress the column numbers (see task 2 of the section "Storing Report Setups Using SETREPORTS" on page 110).

MSG.
NO.

OPTION 2 - LIST

1 SYSTEM MESSAGE: LIST IS ON

YOUR RESPONSE: None.

OPTION 4 - TOTALS

MSG.
NO.

1 SYSTEM MESSAGE: ?TOTS NOW ON. ENTER E OR I OR COL NO.S?:

This is the first message only if there are no existing settings.

YOUR RESPONSE: Type E to exclude specified numeric columns, type I to include specified numeric columns, or make a blank entry to include all numeric columns. If E or I is typed, follow with the list of excluded or included column numbers. Separate each listed column number with a space. Use T between first and last column numbers in a sequential set of included or excluded column numbers.

Message 2 appears next.

2 SYSTEM MESSAGE: TOTALS ON (followed by listing of included or excluded columns)

This is the first message only if there are existing settings.

YOUR RESPONSE: None. Message 3 appears next if there were existing settings.

3 SYSTEM MESSAGE: ?E TO ERASE, OR NEW SETTINGS OR NO ENTRY?:

This message only appears if there were existing settings.

YOUR RESPONSE: To erase all existing settings, type E. This will select all numeric columns.

To change existing settings, make entries as described for message 1.

If no change, make a blank entry.

Message 2 appears next.

OPTION 8 - NO HEADERS

1 SYSTEM MESSAGE: NO HEADERS

YOUR RESPONSE: None.

Figure 37. Prompts and Responses - Options 2, 4, and 8

USING PREPROCESSING AND BORROWING OPTIONS

- Prompts and responses when these options are selected are shown in Figure 40 on page 130.
- Preprocessing (option 2)
  - You can specify one or more regular stored programs for execution.
  - Sorting operations should be specified after any stored program numbers if any of the stored programs contain selection statements.
  - A typical preprocessing statement is shown in Figure 38.

```
                    c 1,2,s 1,3

                            columns to be sorted (separated by commas)

                            s = 'sort' prefix to column numbers
                        comma separator between 'compute' and 'sort'
                        stored program numbers (separated by commas)
                        c = 'compute' prefix to program numbers.
```

Figure 38. Typical Preprocessing Statement

- Borrowing (option 9) A typical borrowing statement is shown in Figure 39.

```
                    Use commas as separators

                t6,h5,g7,f4

                        Borrow footnotes (prefix f) from report 4
                        borrow group (prefix g) indications from report 7
                        Borrow formal headers (prefix h) from report 5
                        Borrow title section (prefix t) from report 6)
```

Figure 39. Typical Borrowing Statement

  - Borrowed elements are printed as is. They cannot be changed or edited.
  - Differences in page width and spacing between columns are accommodated.
  - If borrowed text references a column number for positioning, the column number sequence must be the same in both reports.
  - If formal headers are being borrowed, any headers over groups of related columns must have a width that is at least one character less than the number of character positions (including spaces between columns) in the group of columns.
  - Any report number contained in the same application can be specified for borrowing.

MSG.
NO.
OPTION 1 - PREPROCESSING

1	SYSTEM MESSAGE:	This is the first message only if there are no existing settings.
	YOUR RESPONSE:	?PREPROCESS SETTINGS? Enter stored program numbers and sorting statement in the format shown on opposite page. Message 4 appears next.
2	SYSTEM MESSAGE:	PREPROCESS NOW: (preprocessing statement) This is the first message only if there are existing settings.
	YOUR RESPONSE:	None. Informs you of the existing preprocessing statement. Message 3 appears next.
3	SYSTEM MESSAGE:	?E TO ERASE, OR NEW SETTINGS, OR NO ENTRY?: This message only appears if there were existing settings:
	YOUR RESPONSE:	To erase existing settings, type E To change existing preprocessing statement, type in the new statement in the format shown on opposite page. If no change, make a blank entry Message 4 appears next.
4	SYSTEM MESSAGE	PREPROCESS IS: (preprocessing statement)
	YOUR RESPONSE:	None. Informs you of the final settings.

Figure 40 (Part 1 of 2). Prompts and Responses - Options 1 and 9

MSG. NO.		
OPTION 9 - BORROWING		
1	SYSTEM MESSAGE:	?T H G F WITH REPORT NO. AND COMMAS?: This is the first message only if there are no existing settings:
	YOUR RESPONSE:	Type in borrowing statement in the format shown in Figure 37 Message 4 appears next.
2	SYSTEM MESSAGE:	BORROWING NOW: (borrowing statement) This is the first message only if there are existing settings.
	YOUR RESPONSE:	Informs you of the existing borrowing statement. Message 3 appears next.
3	SYSTEM MESSAGE:	?E TO ERASE, OR NEW SETTINGS, OR NO ENTRY?: This message only appears if there were existing settings.
	YOUR RESPONSE:	To erase existing settings type **E** To change existing borrowing statement, type in the new borrowing statement in the format shown on opposite page. If no change, make a blank entry. Message 4 appears next.
4	SYSTEM MESSAGE:	BORROWING IS: (borrowing statement)
	YOUR RESPONSE:	None. Informs you of the final settings.

Figure 40 (Part 2 of 2). Prompts and Responses - Options 1 and 9

PRINT OPTIONS USED WITH CONTROL BREAKS

- Prompts and responses for these options are shown in Figure 41 on page 133 and Figure 42 on page 134.
- Refer to the section "Predefining Regular Reports with Control Breaks" on page 139 for more details on the use of control breaks.
- Under option 3 (control breaks), you enter the column numbers that define the control breaks. If there is more than one control break level, you enter the column number of the highest (major) level first, and the column number of the lowest (minor) level last. The sorting statement entered under option 1 should list the column numbers in the reverse order (lowest level first, highest level last).
- When option 3 is selected (option 2 must be off), any of the following print options can be used:

- Special program at control breaks (option 5). You specify the number of a stored/control break program that already exists. This program is executed at each control break, and the calculation results are stored in the TOTALS line of the control break. If TOTALS option (option 4) is on, the program also runs on the grand totals line.

- Summary (option 6). Can be used when option 4 (TOTALS) is also selected. Only the grand totals line and the control break group indications, control break total lines, and control break footnotes are printed.

- Overflow on control breaks (option 7). Causes advance to top of form (new page after each major control break is printed. Optionally, you can specify an overflow on minor control breaks as well as major breaks.

- Print footnotes on major break only (option 10) Causes footnotes to be printed after each major control break instead of at bottom of each page.

MSG. NO.		
1	SYSTEM MESSAGE:	OVERFLOW ON. This is the only message when there is only one control break level.
	YOUR RESPONSE:	None. There are no options.
2	SYSTEM MESSAGE:	?OVERFLOW ON MAJOR BREAKS? Y/N: This message appears first if there are two or more control break levels and there are no existing settings; or if **Y** is typed in response to message 4.
	YOUR RESPONSE:	Type **Y** if you want page breaks to occur only at major control breaks.
	SYSTEM MESSAGE	?OVERFLOW ON MAJOR BREAKS? Y/N:
	YOUR RESPONSE	If you want page breaks at all control breaks, type **N** Message 3 appears next.
3	SYSTEM MESSAGE	OVERFLOW ON (major or minor) BREAKS (message indicates either major or minor). This message appears first if there are two or more control break levels, and there are existing settings.
	YOUR RESPONSE:	None. Message 4 appears next if there were existing settings. If there were no existing settings this is the last message for option 7.
4	SYSTEM MESSAGE	?CHANGE EXISTING SETTINGS? Y/N: This message only appears if there are existing settings:
	YOUR RESPONSE:	Type **Y** if you want to change the existing setting; message 2 appears next. Type **N** if there is no change in existing setting; message 3 appears next.

Figure 41. Option 7 - Overflow on Control Breaks

OPT.
NO.

OPTION 3 - CONTROL BREAKS

1	SYSTEM MESSAGE	?CONTROL SETTINGS OR H FOR HELP?: This is the first message only if there are no existing settings.
	YOUR RESPONSE:	Type H to obtain the number of control break levels. You are given the number of levels, and the prompt is repeated. Type in the column number(s) for the control breaks (major level first), separating column numbers with commas. Message 4 appears next.
2	SYSTEM MESSAGE	n CONTR LEVEL(S) SET AS: m1,m2 Where (n = number of levels: m1 = column number for major level; m2 = column number for minor level) This is the first message only if there are existing settings.
	YOUR RESPONSE	None. Message 3 appears next.
3	SYSTEM MESSAGE:	?E TO ERASE OR NEW SETTINGS OR NO ENTRY?: (message only appears if there are existing settings)
	YOUR RESPONSE	To erase existing settings, type E To change existing settings, type in column numbers as described in Message 1. If no change to existing settings, make a blank entry.
4	SYSTEM MESSAGE:	CONTROL LEVEL(S): m1,m2 (n, m1, and m2 have same definitions as in Message 2)
	YOUR RESPONSE:	None. Indicates final settings.

OPTION 5 - CONTROL BREAK PROGRAM

1	SYSTEM MESSAGE:	?PGM NO. TO USE AT BREAKS?: This is the first message only if there are no existing settings.
	YOUR RESPONSE:	Type in the number of a stored control break program. Message 2 appears next.

Figure 42 (Part 1 of 2). Prompts and Messages -- Options 3, 5, 6, and 10

OPT. NO.		
2	SYSTEM RESPONSE:	CTL BRK PGM: n (n = Number of program). This is the first message only if there is an existing setting.
	YOUR RESPONSE:	None. Message 3 appears next if there were existing settings.
3	SYSTEM MESSAGE:	?E TO ERASE, OR NEW SETTINGS. OR NO ENTRY?:
	YOUR RESPONSE:	To erase existing setting, type 3 To change existing setting, type in new program number. If no change, make a blank entry. Message 2 appears next.
OPTION 6		
1	SYSTEM MESSAGE:	SUMMARY IS ON
	YOUR RESPONSE:	None.
OPTION 10		
1	SYSTEM MESSAGE:	FOOTNOTES ON
	YOUR RESPONSE:	None.

Figure 42 (Part 2 of 2). Prompts and Messages -- Options 3, 5, 6, and 10

USING VARIABLE DATA IN TEXT

This section tells you how to specify variable data within the text of titles, formal headers, group indications, footnotes, and text lines of regular or patterned reports.

Variable data provides an added dimension to your reports. Variables are easy to incorporate into the text, and you should investigate their possible uses in your application.

Task 3 of the section "Using LIST Command to Generate Simple Reports" on page 70 provides the information for entering the text of titles, formal headers, group indications, and footnotes. The section "Setting Up Patterned Reports" on page 145 provides the information for entering text into the body of patterned reports.

LIST OF SUBJECTS COVERED

1. Using system-defined variables in text
2. Using business factors in text
3. Using tabular variables in text by indexing a line number with an execution-time prompt

4. Specifying control break column data in the text of a group indication title

5. Using related file data in text

HIGHLIGHTS

- You type the name of the variable (bracketed by question marks) at the point in the text where you want the variable data to appear. During report generation, the variable name and the question marks are replaced by the value of the variable.

  Example: **?varname?**

- The value of the variable may be either a number or alphameric data.

- Types of variables used in text include:

  - System-defined variables (date, year, month, time, page number, number of rows in each control break, total rows in the report, current report number, current control break level).

  - Business factors created by the BUSFACTS command. A business factor is assigned a unique name, and has a single numeric or alphameric value.

  - Tables of values for numeric or alphameric variables, created by the EDIT command. The table is assigned a unique name. Each line of the table contains a value. The table is indexed by a calculation statement (usually part of a stored program executed during report preprocessing that normally contains an execution-time prompt). The operator responds by typing in an indexing number that selects the value on one of the lines of the table.

  - Control Break Column of Data File. The column on which sorting is performed to define a control break level contains the variable part of the group indication title for each control break.

  - Related Files. A related file is stored in shared files storage under a calling name consisting of the prefix RF, followed by the data file column number that ties the related file to the data file. Data can be extracted from any selected column of the related file for use in text.

USING SYSTEM-DEFINED VARIABLES IN TEXT

While entering the text, type one of the following at the point in the text where you want the variable to appear:

- **?ROWS?** if you want the number of rows (records) in the current control break of the report to appear (this can be used in group indication titles or footnotes at control breaks).

- **?TROWS?** if you want the total number of rows (records) in the report to appear in the title or on a line of the formal headers.

- **?PAGENO?** if you want the report page number to appear in the formal headers, the title, or in a footnote at the bottom of each page.

- **?DATE?**, **?DATES?**, or **?DATEL?** if you want a date/time stamp to appear in the title, the formal headers, or a footnotes at the bottom of each page. The difference between these three variables is as follows:

- DATE prints the month/day/year: 5/15/79
- DATES prints the month/day/year, and the time:
  5/15/79 -- 5:34 PM
- DATEL prints the date in standard format followed by the time:
  MAY 15, 1979 --- 5:34 PM

- **?YEAR?, ?MONTH?, ?MON?, ?TIME?** provide the year, month (spelled out or abbreviated), and the time (hour and minute).
- **?REPNO?** provides the number of the report currently being generated.
- **?LEVEL?** provides the control break level currently being processed.

USING BUSINESS FACTORS IN TEXT

1. Create the business factor using the BUSFACTS command, as described in the section "Using the BUSFACTS Command to Create Business Factors" on page 106. Enter a unique name for the business factor, and its current value.
2. While entering the text, type **?BUSFACTOR?** at the point where you want the factor to appear. Replace busfactor by the name you assigned to the business factor in step 1.

USING TABULAR VARIABLES IN TEXT

This section tells how to use tabular variables in text by indexing a line number with an execution-time report prompt. (See also the section "Using Variable Data in File Processing" on page 96.)

1. Create the table of variables using the EDIT command, as described in the section "General-Purpose Editing, Using the Edit Command" on page 102. Enter a unique name for the table. Use each line number of the table as the indexing key for the value entered on each line.
2. Write a calculation statement containing an execution-time prompt for the operator to enter a line indexing number for the table. The calculation statement must be part of a stored program that is executed prior to report generation, or must be part of the pre-processing for the report. The calculation statement has the following format:

   ACROSS k?'?any desired prompt message?:' = v'tablename'

   Where: tablename is to be replaced by the name assigned to the table in step 1.

3. While entering the text, type **?tablename?** at the point where you want the indexed value from the table to appear, where ?tablename? is the name you assigned to the table in step 1.

SPECIFYING CONTROL BREAK IN TEXT OF GROUP INDICATION TITLE

- The data file column number used to define a control break level is normally specified as variable data in the group indication text for the control break level.

- While entering the group indication title, as described in task 3 of the section "Using LIST Command to Generate Simple Reports" on page 70, type the control break column number at the point in the text where you want the data from the control break column to appear. The format for the column number entry in the text shall be as follows:

  ?cn?

  Where: n = the control break column number.

USING RELATED FILE DATA IN TEXT

1. A related file must first be created separately from the data file in the application. The related file must contain the following elements:

   - Column 0 must contain rowids which can be matched up with alphameric data in one of the columns of the data file in the application.

   - Columns 1 and up must contain data to be separately extracted and incorporated at various points in the text.

2. The related file created in step 1 must be stored in shared files, as described in the section "Storing, Loading, and Deleting Shared Files" on page 205. The name used to store the related file must be as follows:

   RFx

   Where x is the column number of the data file in the application that is to be matched against the rowids in column 0 of the related file.

3. Determine the related file column number (n) that is to be extracted from the related file and incorporated into the text of the title, formal header, group indication, or footnote.

4. While entering text as described in task 3 of the section "Using LIST Command to Generate Simple Reports" on page 70, type **?rfxcn?** at the point where you want the extracted data to appear.

   Where

rfx	Is the name assigned to the related file in step 2.
cn	Is the column number in the related file that is to be extracted, as defined in step 3.

5. During report generation, the value in column x of the data file is matched against the rowids in column 0 of the related file. If a match is found, the data in column n of the matched-up row in the related file is extracted and inserted at the point in the text that was specified in step 4.

For example, suppose you have stored a related file and called it RF0.

in our case, RFO looks like this:

```
(0)         (1)                 (2)                  (3)
CUST
CODE     CUST NAME             STREET                CITY
---- ------------------ ------------------ ------------------
101A A. FREIHOFNER EAST   252 PEACHTREE ST.  ATLANTA, GA.
101B A. FREIHOFNER SOUTHW 3841 MAIN ST.      OKMULGEE, OKLA.
101C A. FREIHOFNER WEST   1212 BOULDER BLVD  DENVER, COLO.
```

Later on, using the SETREOIRTS command, under the formal headers option, you wish to print the customer's name and address above the headers. The following code is an example of that:

```
?ROW 1 FROM COL 0: L/CUSTOMER:,P12/?RFOC1?
?ROW 2 FROM COL 0: P12/?RFOC2?
?ROW 3 FROM COL 0: P12/?RFOC3?
```

An example of what that code prints is:

```
CUSTOMER:  A. FREIHOFNER WEST
           1212 BOULDER BLVD
           DENVER, COLO.
```

Explanation: the word 'customer' is left justified and 12 spaces from the left is the customer's name taken from RFO, column 1. On the next line, twelve spaces from the left, is the street address taken from RFO, column 2, etc.

PREDEFINING REGULAR REPORTS WITH CONTROL BREAKS

This section provides supplemental information for use with the sections "Storing Report Setups Using SETREPORTS" on page 110 and "Selecting and Using Print Options in Regular Reports" on page 126 to assist you in setting up regular reports with control breaks.

BASIC REQUIREMENTS FOR CONTROL BREAK REPORTS

1. Data File must contain columns that allow records (rows) to be sorted so that all records having identical row values in those columns are grouped together. These are the control break columns.

2. Sorting as described above must be specified as part of the preprocessing print option, or must be accomplished prior to report generation. If two or more control break levels are involved (different column for each level), the file must be sorted on the lowest level first, and the highest (major) level last.

3. The control breaks print option must be selected, and the control break column (or columns if there is more than one level) must be specified.

ADDITIONAL FEATURES

- If group indication titles were entered under the group indication report option, the titles are printed above the records for each control break grouping. If two or more levels of control breaks are used (major and minor, for example), separate titles can be used for each level. The information from the control break columns of the data file can be specified as a variable within the title entry. During report production, the variable is replaced by the information extracted from the control break column for each control break grouping.

- If the totals print option is on, a row of subtotals is produced for selected numeric columns below each control break group.
- If the program at control breaks print option is on, a stored-program calculation (across only) can be performed, and the result of the calculation is placed in one of the columns of the subtotal row.
- If footnotes were entered under the foornotes report option, and if the print footnotes on major break only print option is on, footnotes are printed below the subtotal row for each major control break grouping.
- If the overflow on control break print option is on, a page break occurs at the end of each major control break grouping, or at the end of both major and minor control break grouping, depending upon the selection that is made.
- If the summary and totals print options are both on, a report is produced containing only the group indication titles, the subtotal rows, the control break footnotes, and the grand totals at the end of the report. There must be one entry of group indication for every level of control break, even if it is blank.

DETAILED PROCEDURE

1. Define the columns that will be used for control breaks, and designate the column numbers for major and minor control breaks if more than one level is being used.

2. If special calculations will be performed and stored in the TOTAL line of each control break, use PROGRAM command (see the section "Basic-Level Computations" on page 93 for details) to enter and store a control break program under an assigned number.

3. Define the group indication titles for each control break level. Distinguish between control break levels in the titles by the number of asterisks used before and after the title (use single asterisk for lowest level, two asterisks for next lower level, and so on). Specify column number associated with each level, and enclose the column number with question marks at the appropriate point in the text of the title.

   Example:

   LOCATION: ?C2?

   will cause the data in column 2 to be printed following the colon in the group indication title.

4. Determine whether you want page breaks on major or minor control breaks.

5. Determine whether you want to print footnotes on major control breaks.

6. Perform tasks 1, 2, and 3 of the section "Storing Report Setups Using SETREPORTS" on page 110. In task 3, select report option 3 to enter the group indication titles developed in step 3 above, and

select report option 4 to enter footnotes to be printed at major control breaks (see step 5 above).

7. Perform the procedure in the section "Selecting and Using Print Options in Regular Reports" on page 126 to select the following print options:

   Option 1 - Preprocessing. Enter a sorting statement that specifies the control break column numbers defined in step 1 above. Columns should be listed with lowest control break level first, and highest (major) control break level last.

   Option 3 - Control Breaks. Enter the control break column numbers (major first, minor second).

   Option 4 - Totals. Specify the numeric columns for which you want totals at each control break.

   Option 5 - Program at Control Breaks. If a control break program was stored in step 2, enter the number that was assigned to the program.

   Option 6 - Summary. If you only want summary data (control break totals and grand totals), select this option.

   Option 7 - Overflow. If you want page breaks at major or minor control break levels (see step 4 above), select this option, and specify whether you want page breaks at major control breaks only, or at both major and minor breaks.

   Option 10 - Footnotes on Major Breaks Only. If you want footnotes to be printed at each major control break (see step 5 above), select this option.

   Options 8 and 9. Options 8 (no headers) and 9 (borrowing) can be selected if required.

THREE EXAMPLES OF REGULAR REPORTS (INCLUDING TERMINAL SESSIONS)

The following three examples of regular reports demonstrate many report options. These include: control breaks, using totals, using the summary option, footnotes, formal headers, and using variable data in report building. All three examples are based on the 'Widget Company Data Base' which you'll see below. Note that the terminal sessions of SETREPORTS include only the statements that pertain to the report being built.

```
WIDGET COMPANY DATA BASE
(0) 1     (2)       (3)    (4)    (5)     (6)       (7)          (8)        (9)
                    QTY                            SALES
PRO T   PRODUCT     LAST   QTY   UNIT    UNIT      LAST         SALES      TARG
NO  Y    NAME       YEAR   YTD   PRICE   COST      YEAR          YTD       QUAN
--- - ----------- ----- ----- ------ ------ ----------- ----------- -----
226 A BACKUP      12000  7000  15.00   9.00   180000.00   105000.00  5000
220 A CLEARANCE    9200  5600   8.00   4.80    73600.00    44800.00  3600
118 A EMERGENCY    1800  1040 300.00 180.00   540000.00   312000.00   760
112 A FOG          2500  1960  20.00  12.00    50000.00    39200.00   540
113 A SPOTLIGHT    1000   795  35.00  21.00    35000.00    27825.00   205
116 I FLOOD        9000  5900  40.00  24.00   360000.00   236000.00  3100
229 I REEL        20000 12050  28.00  15.80   560000.00   337400.00  7950
117 I REFLECTOR    8000  1700  23.00  13.80   184000.00    39100.00  6300
221 I STREET       2000   989 550.00 395.00  1100000.00   543950.00  1011
119 I UTILITY     20000 13000   8.00   4.80   160000.00   104000.00  7000
226 M BLACKOUT        0   420  20.00  12.00         .00     8400.00  -420
114 M BLASTPROOF    600   395 800.00 480.00   480000.00   316000.00   205
222 M FLOOD        2000  1120  80.00  48.00   160000.00    89600.00   880
227 M SIGNAL         50    35  60.00  36.00     3000.00     2100.00    15
```

Example 1

```
      SETREPORTS
? REPORT NO?: 9
? ENTER NAME IF DESIRED?: PRACTICE WITH FOOTNOTES AND VARIABLES
? COL NO.S ?: 0  (8) 1  (10) 2  (12)
? WANT FORMAT HDRS? Y/N: Y
? ROW NO.S TO USE IN FORMAL HDRS?: 2T5
? ROW 1 FROM COL 0?: U/
? ROW 2 FROM COL 0?: L/REPORT PREPARED BY ?T5?
? ROW 3 FROM COL 0?: R/DEPT 73W
? ROW 4 FROM COL 0?: L/REPORT IS VALID ?ASOF?
? ROW 5 FROM COL 0?: U/
THE 4 ROW OF COL HDRS NOW ROWS 6 7 8 9
HEADERS DONE
? CONTINUE WORK ON REP 9? Y/N: Y
? REP 9 EXISTS. ENTER REP OPT. NO.S OR LIST?: 4 5
? ROW 1 FROM COL 0?: L/THIS REPORT LISTS ONLY
? ROW 2 FROM COL 0?: A, I, M.
? ROW 3 FROM COL 0?: C/END OF FOOTNOTES
FOOTNOTES DONE
? PRT OPT NO.S OR LIST?: 3
? CONTROL SETTINGS OR H FOR HELP?: 1,0,2
BE SURE TO )SAVE
```

Report 9 looks like this:

```
--------------------------------------------
REPORT PREPARED BY FRIES
                                    DEPT 73W
REPORT IS VALID 08/14/80
--------------------------------------------

PRO        T           PRODUCT
NO         Y             NAME
---        -          ----------
226        A          BACKUP

220        A          CLEARANCE

118        A          EMERGENCY

112        A          FOG

113        A          SPOTLIGHT

116        I          FLOOD

229        I          REEL

117        I          REFLECTOR

221        I          STREET

119        I          UTILITY

228        M          BLACKOUT

114        M          BLASTPROOF

222        M          FLOOD

227        M          SIGNAL


THIS REPORT LISTS ONLY
   A        I                 M.
             END OF FOOTNOTES
```

Note on Footnotes: In SETREPORTS, the line "ROW 2 FROM COL 0?: A,I,M" doesnot have something like "c/" or "l/", etc. This causes each letter to be printed at the last position of each column.

Example 2

```
      SETREPORTS
? REPORT NO?: 11
? ENTER NAME IF DESIRED?: PRACTICE WITH CONTROL BREAKS,TOTALS, AND FOOTNOTES
? COL NO.S ?: 0 2 5 6 7 8 9 11
? WANT FORMAL HDRS? Y/N: Y
? ROW NO.S TO USE IN FORMAL HDRS?: 1T5
? ROW 1 FROM COL 0?: B/
? ROW 2 FROM COL 0?: U/=
? ROW 3 FROM COL 0?: C/CONTROL BREAK ON WIDGET CO.
? ROW 4 FROM COL 0?: L/DEPT 14N,R/?DATE?
? ROW 5 FROM COL 0?: B/
? ROW 6 FROM COL 0?: U/=
THE 5 ROW OF COL HDRS NOW ROWS 7 8 9 10 11
? CONTINUE WORK ON REP 11? Y/N: Y
? REP 11 EXISTS. ENTER REP OPT. NO.S OR LIST?: 4 5
? ROW 1 FROM COL 0?: C/THESE FOOTNOTES
? ROW 2 FROM COL 0?: C/APPEAR CENTERED
? ROW 3 FROM COL 0?: C/AT THE BOTTOM OF THE PAGE,
? ROW 4 FROM COL 0?: C/DON'T THEY?
? PRT OPT NO.S OR LIST?: 3 4
? CONTROL SETTINGS OR H FOR HELP?: 1
1 CONTROL LEVEL(S): 1
? TOTS NOW ON, ENTER E OR I AND COL NOS?: I 7 8 9 11
TOTALS ON  I 7 8 9 11
BE SURE TO )SAVE
```

Report 11 looks like this:

```
=====================================================================
                    CONTROL BREAK ON WIDGET CO.
DEPT 14N                                                      9/9/81

=====================================================================
(0)    (2)      (5)    (6)       (7)         (8)      (9)     (11)
                                SALES
PRO  PRODUCT    UNIT   UNIT     LAST        SALES    TARG
NO    NAME     PRICE   COST     YEAR         YTD     QUAN    COL11
--- ---------- ------ ------ ----------- ----------- ----- ----------
226 BACKUP      15.00   9.00   180000.00   105000.00  5000      24.00
220 CLEARANCE    8.00   4.80    73600.00    44800.00  3600      12.80
118 EMERGENCY  300.00 180.00   540000.00   312000.00   760     480.00
112 FOG         20.00  12.00    50000.00    39200.00   540      32.00
113 SPOTLIGHT   35.00  21.00    35000.00    27825.00   205      56.00
                             ----------- ----------- ----- ----------
TOTAL A*                       878600.00   528825.00 10105     604.80

116 FLOOD       40.00  24.00   360000.00   236000.00  3100      64.00
229 REEL        28.00  15.80   560000.00   337400.00  7950      43.80
117 REFLECTOR   23.00  13.80   184000.00    39100.00  6300      36.80
221 STREET     550.00 395.00  1100000.00   543950.00  1011     945.00
119 UTILITY      8.00   4.80   160000.00   104000.00  7000      12.80
                             ----------- ----------- ----- ----------
TOTAL I*                      2364000.00  1260450.00 25361    1102.40

228 BLACKOUT    20.00  12.00         .00     8400.00  -420      32.00
114 BLASTPROOF 800.00 480.00   480000.00   316000.00   205    1280.00
222 FLOOD       80.00  48.00   160000.00    89600.00   880     128.00
227 SIGNAL      60.00  36.00     3000.00     2100.00    15      96.00
                             ----------- ----------- ----- ----------
TOTAL M*                       643000.00   416100.00   680    1536.00
                             =========== =========== ===== ==========
GRAND TOTAL                   3885600.00  2205375.00 36146    3243.20
                             =========== =========== ===== ==========


                          THESE FOOTNOTES
                          APPEAR CENTERED
                     AT THE BOTTOM OF THE PAGE
                            DON'T THEY?
```

Example 3

```
      SETREPORTS
? REPORT NO?: 7
? ENTER NAME IF DESIRED?: SUMARY OF TOTALS
? COL NO.S ?: 0T9
? WANT FORMAL HDRS? Y/N: Y
? ROW NO.S TO USE IN FORMAL HDRS?: 2T5
? ROW 1 FROM COL 0?: U/*
? ROW 2 FROM COL 0?: C/WIDGET COMPANY SALES REPORT
? ROW 3 FORM COL 0?: U/*
? ROW 4 FROM COL 0?: L/SALES DATA
? ROW 5 FROM COL 0?: R/PREPARED BY DEPT 68M
? ROW 6 FROM COL 0?: B/
THE 4 ROW OF COL HDRS NOW ROWS 7 8 9 10
? CONTINUE WORK ON REP 7? Y/N: Y
? REP 7 EXISTS. ENTER REP OPT. NO.S OR LIST?:  5
? PRT OPT NO.S OR LIST?: 1 3 4 6
? PREPROCESS SETTINGS?: S1,C1
? CONTROL SETTINGS OR H FOR HELP?: 1
1 CONTROL LEVELS(S): 1
? TOTS NOW ON. ENTER E OR I AND COL NOS?: E 5 6
TOTALS ON  E 5 6
SUMMARY IS ON
? CONTINUE WORK ON REP 7? Y/N:
BE SURE TO )SAVE
```

Report 7 looks like this:

```
************************************************************************
                      WIDGET COMPANY SALES REPORT
************************************************************************
SALES DATA
                                                    PREPARED BY DEPT 68M

                  QTY                         SALES
PRO T  PRODUCT   LAST   QTY   UNIT   UNIT     LAST        SALES    TARG
NO  Y    NAME    YEAR   YTD  PRICE   COST     YEAR         YTD     QUAN
--- - ---------- ----- ----- ------ ------ ----------- ----------- -----
A *              26500 16395                 878600.00   528825.00 10105

I *              59000 33639                2364000.00  1260450.00 25361

M *               2650  1970                 643000.00   416100.00   680
                 ===== =====               =========== =========== =====
GRAND TOTAL      88150 52004                3885600.00  2205375.00 36146
                 ===== =====               =========== =========== =====
```

SETTING UP PATTERNED REPORTS

This section tells you how to set up reports using report option 6 of the SETREPORTS command.

Regular reports have a fixed structure consisting of a listing of selected data file records under selected columns. The listing can be preceded by a title section and formal headers, and can include group indication titles, control break totals, and footnotes within the body of the report.

If the required structure of your report cannot be accomplished within the limitations of regular reports, you can almost certainly set up the required structure under report option 6, patterned report. You set up the report format on a line-by-line basis by creating a print pattern table that specifies all of the instructions and text required to generate the report.

SUBJECTS COVERED

1. Summary of task steps
2. Basic Steps in creating reports without folded patterns
3. Basic steps in creating reports with folded patterns
4. Generating list-type reports that contain columned data extracted from related files
5. Creating the print related files
6. Editing the print pattern table
7. Introduction to coding
8. Coding used in lines of the print pattern
9. Worksheet

HIGHLIGHTS

- In the print pattern table, code elements are used to specify the following:
  - Preprocessing of the data file.
  - Printing of column headers, and text set up under report options 1, 2, and 4.
  - Positioning and printing of text and variable data entered directly into the pattern.
  - Printing of a specified set of columns for a specified set of records (rows) in the data file. Columns selected for printing, and their arrangement and spacing, can be changed at any point within the body of the report. Column headers for the currently selected columns can be printed before the records are printed.
  - Printing of column totals in specified columns for a specified set of records.
  - Underscoring of headers, text, totals, etc.
  - Skipping of print lines.
  - Printing a repeating pattern for each selected record in the data file. The pattern may be folded or unfolded. In folded patterns, two or more columns from each record are printed one under the other.
- During report generation, using the REPORTS command, the print pattern table instructions are executed one line at a time, in line number sequence.
- While creating the print pattern table, you can obtain the starting and ending character positions for each currently selected column number by means of a query edit subcommand (q/).

SUMMARY OF TASK STEPS

1. To set up a new patterned report, perform tasks 1, 2, and 3 (if applicable) of the section "Storing Report Setups Using SETREPORTS"

on page 110. At the completion of these tasks, select report option 6.

2. If you are copying the entire print pattern from another report in the same application, specify the number of the report whose pattern is being copied, and proceed to the print pattern editing procedure (see the section "Editing the Print Pattern Table" on page 157).

   If you are not copying from another report, proceed to step 3.

3. If you are creating a folded pattern, refer to the section "Basic Steps in Creating Reports with Folded Patterns" on page 151.

   If the pattern is not folded, refer to the sections "Basic Steps in Creating Reports without Folded Patterns" and "Generating List-Type Reports that Contain Data From Related Files" on page 153.

4. Create the print pattern table as described in the section "Creating the Print Pattern Table" on page 155. Then, proceed to the editing procedure in the section "Editing the Print Pattern Table" on page 157. The sections "Introduction to Coding" on page 160 and "Coding Used in Lines of Print Pattern" on page 161 contain complete details regarding the coding entered on lines of the print pattern.

BASIC STEPS IN CREATING REPORTS WITHOUT FOLDED PATTERNS

1. The data file columns selected for printing, the sequence in which the columns appear, and the spacing between columns will initially be controlled by the column specifications that were entered in task 2 of the section "Storing Report Setups Using SETREPORTS" on page 110.

   Proceed to step 2 after selecting report option 6.

2. Any preprocessing instructions must be entered into the print pattern table first, before any print lines are specified.

3. If a title section was created under report option 2, and if this title section contains the title of the report, enter the instruction for printing the title section.

   If you are borrowing the report title from another report, enter the instruction for borrowing and printing the title.

   If you did not use report option 2 for the title, are not borrowing the title from another report, and the report title is not included as part of the formal headers described in step 5, enter the text of the title into the print pattern.

4. If more text (other than headers) is to appear before the headers, enter this text into the print pattern.

5. At the point in the text where you want to print the first data, process as follows:

   a. If you are borrowing formal headers from another report, enter the instruction for borrowing and printing the formal headers.

      Then, proceed to stpe 6 or (if creating a repeating pattern) to step 11.

   b. If you are using the text created under report option 1 (formal headers) as the headers for the set of columns defined in step 1 or step 9, enter the instruction for printing the formal headers.

Then, proceed to step 6 or (if creating a repeating pattern) to step 11.

c. If you are not borrowing formal headers from another report, and are not using the text created under report option 1 for the headers for the columns defined in step 1 or step 9, enter the instruction for printing the column headers in the data file setup.

   Then, on the next line of the print pattern, enter the instruction for underscoring the column headers. Then, proceed to stpe 6 or (if creating a repeating pattern) to step 11.

d. If you are not borrowing formal headers, not using the text created under report option, and not using the column headers in the data file setup, enter (on one or more lines of the print pattern) the text of the column headers you want to use, being sure that each header is positioned so that it is centered where the column will appear on the page.

   Then, proceed to step 6 or (if creating a repeating pattern) to step 11.

6. You are now ready to specify the data to be printed under the column headers set up in step 5. The data can be any combination of the following:

   a. Selected records (rows) from the data file. The data can be preceded by one or more lines of text containing a title for the selected set of records.

      Enter an instruction to print the selected records (following the lines that specify a title). The selected row values in the column specified in step 1 or step 9 will be printed.

   b. One or more lines of totals obtained by summing row values in numeric columns of a selected set of records (the records themselves are not printed).

      The lines of totals may be preceded by one or more lines of text containing a title for the totals. Enter an instruction to print the totals in selected numeric columns for the selected records. The totals will print in the selected columns.

7. Following the lines of data and/or totals specified in step 6, you may want to print column totals for the records and/or totals just printed, or for a selected set of records among those just printed. In this case, proceed as follows:

   a. Enter an instruction to underscore the numeric columns where totals will be produced.

   b. Enter an instruction to total all or selected records in selected numeric columns. This causes column totals to be printed below the underscores printed by the instruction in step a.

   c. Enter an instruction to underscore the totals produced in step b.

8. Following the data and totals printed in steps 5 and 6, enter an instruction for borrowing and printing the footnotes.

   a. Enter an instruction to skip print lines, if desired.

   b. If you are borrowing footnotes from another report, enter an instruction for borrowing and printing the footnotes. Then, proceed to step 9.

   c. If you are using the text created under report option 4 (footnotes), enter an instruction to print the footnote. Then, proceed to step 9.

   d. If you are not borrowing footnotes and are not using the text created under report option 4, enter (on one or more lines of the print pattern) the text that you want to appear. Then, proceed to step 9.

9. If you want to print another set of records and/or totals using the same column setup that was specified for the preceding set of records, repeat steps 4 through 8, as applicable. Repeat step 5 only if you want to print the column headers again. If you want to print the same or another set of records with different columns, different sequence of columns, or different spacing, proceed as follows:

   a. Enter an instruction to skip print lines, if desired.

   b. Enter an instruction to change the column specifications entered in step 1.

   c. Perform steps 4 through 8, as applicable.

10. Repeat step 9 for each set of records that you want to appear prior to any repeating pattern that is to appear in the report. Then, proceed to step 11.

11. If you want to print a repeating pattern for each selected record in the data file, the repeating pattern must appear last in the print pattern. Proceed as follows:

   a. If changing the column setup, enter an instruction to change column specifications.

   b. Enter instructions for printing any one-time text, headers, etc. that you do not want to repeat for each record being printed. See step 5 for creating headers.

   c. Enter the repeat code (r/). All entries that follow in steps d through h are part of the repeating pattern, and will be produced for each selected record.

   d. Enter an instruction to skip print lines between records, if desired.

   e. Enter any text that is to precede each record in the repeating pattern.

   f. Enter any text to appear on the same line as each data record, followed by the d/* code that instructs the system to print the current record.

   g. Enter any text that is to follow each record.

   h. Enter an instruction to skip print lines between records, if desired.

Note: Step 11 permits you to produce a regular list-type report by specifying a one-line repeating pattern. Simply enter instructions for printing titles, headers, etc., followed by the r/ code. Then, on the last line of the table, enter the d/* code.

An Example of a Patterned Report

The data base in the customer workspace:

```
 (0)          (1)                    (2)                    (3)

CUST
CODE    CUSTOMER NAME             STREET                  CITY
---- -------------------- -------------------- --------------------
901W GRIFFIN BREAD        456 SHEPHERD         IRV TX
933E HEADER PLUMBING      1515 TRADE RD        NY NY
987G HANYAK FEED STORE    674 MOODY LN         COLLEYVILLE TX
988T GARCIA LOAN CO       2125 MAMOON DR       NY NY
924V NORMA'S PASTA, INC   5332 ORLEANS         ELP, TX
```

The following is a complete terminal session that will generate a patterned report from this data base.

```
      SETREPORTS
? REPORT NO?: 34
NEW  REPORT
? ENTER NAME IF DESIRED?: PATTERNED REPORT (NOT FOLDED)
? OTHER REP NO. IF COPYING COL NO. SET?:
? COL NO.S ?: 1 2 3
REP IS 62 CHARS WIDE. 68 LEFT
? MORE COL NO.S ?:
? WANT FORMAL HDRS? Y/N:
? CONTINUE WORK ON REP 34? Y/N: Y
? REP 34 EXISTS. ENTER REP OPT. NO.S OR LIST?: 6
USE A , IN COMBINATIONS
? OTHER REP NO. IF COPYING PATTERN?:
? FOLDED PATTERN? Y/N:
CREATING PATTERN 34
? LINE 1 ?: R/
? LINE 2 ?: S/
? LINE 3 ?: T/MAILING LIST
? LINE 4 ?: U/=
? LINE 5 ?: TR/?DATEL?
? LINE 6 ?: S/
? LINE 7 ?: D/*
? LINE 8 ?: S/
? LINE 9 ?:
? LINE NO. OR LIST ?:
PATTERN 34 EDITING DONE
? CONTINUE WORK ON REP 34? Y/N:
BE SURE TO )SAVE
```

After typing **REPORTS**, and asking to see report 34, you'll see:

```
MAILING LIST
=============================================================
                                  SEPTEMBER 9, 1981 - 3:51 PM

GRIFFIN BREAD        456 SHEPHERD         IRV TX


MAILING LIST
=============================================================
                                  SEPTEMBER 9, 1981 - 3:51 PM

HEADER PLUMBING      1515 TRADE RD        NY NY


MAILING LIST
=============================================================
                                  SEPTEMBER 9, 1981 - 3:51 PM

NORMA'S PASTA,INC.   5332 ORLEANS         ELP TX


MAILING LIST
=============================================================
                                  SEPTEMBER 9, 1981 - 3:51 PM

HANYAK FEED STORE    674 MOODY LN         COLLEYVILLE TX


MAILING LIST
=============================================================
                                  SEPTEMBER 9, 1981 - 3:51 PM

GARCIA LOAN CO.      2125 MAMOON DR       NY NY
```

BASIC STEPS IN CREATING REPORTS WITH FOLDED PATTERNS

In a folded pattern report, selected columns of each selected record in the data file are printed one above the other. For example, if you wanted to create mailing labels from a data file that contained name, street address, city/state, and zip code in columns 1 through 4 respectively, you would specify a folded pattern containing column 1 (name) on the first line, column 2 (street address) on the second line, column 3 (city/state) on the third line, and column 4 (zip code) on the fourth line. You set up the print pattern table with a folded repeating pattern that prints the four lines described above for each selected record in the data file. Proceed as follows:

1. Assure that all columns to be included in the folded pattern have exactly the same column width.

2. When entering column specifications in task 2 of the section "Storing Report Setups Using SETREPORTS" on page 110, only specify the first column to be printed in the folded pattern. Precede the column number for the first column with any spacing indention from the left margin of the form. This intention will then occur for each succeeding line of the folded pattern. Proceed to step 3 after selecting report option 6.

3. Response yes to the prompt that asks if you are creating a folded pattern.

4. Respond to each ?ALL COL NO.S FOR DATA LINE n?: prompt by entering the second and succeeding column numbers that are to appear below the first column specified in step 2. Enter only one column number in response to each prompt. After the last column number of the folded pattern is entered, make a blank entry in response to the next ?ALL COL NO.S FOR DATA LINE n?: prompt.

5. Following the CREATING PATTERN message, you are prompted to enter each line of the print pattern. Proceed as follows:

   a. On the first line, enter any applicable preprocessing instruction for the data file.

   b. On the next line or lines, preceding the repeating pattern, enter instructions for printing any one-time text, headers, etc. that you do not want to repeat for each record being printed.

   c. Enter the repeat code (r/). All entries that follow in steps d through h are part of the repeating pattern, and will be produced for each selected record.

   d. Enter an instruction to skip print lines between records, if desired.

   e. Enter any repeating text that is to precede the first line of the folded pattern for each record in the repeating pattern.

   f. Enter any text to appear on the same line as the first column of the folded pattern, followed by the d/* code that instructs the system to print the folded column pattern for the current record.

   g. Enter any repeating text that is to follow below the last line of the folded pattern.

   h. Enter an instruction to skip print lines between records, if desired.

   Note: The indention from the left margin specified in step 2 above, and the line skips before and after the text and data printed for each record, provide the means of aligning or centering the repeating pattern on the printed form.

The following is an example of a folded pattern report. The data base is the same as the one used in the previous section. The SETREPORTS terminal session has only the lines that deal with the folded pattern.

```
SETREPORTS
? REPORT NO?: 33
? ENTER NAME IF DESIRED?: PRACTICE WITH FOLDED PATTERNS
? COL NO.S ?: 1
? REP 33 EXISTS. ENTER REP OPT. NO.S OR LIST?: 6
? FOLDED PATTERN? Y/N: Y
? ALL COL NO.S FOR DATA LINE 2?: 2
? ALL COL NO.S FOR DATA LINE 3?: 3
2 LINES ADDED, BEGIN PATTERN
CREATING PATTERN 33
? LINE 1 ?: R/
? LINE 2 ?: S/
? LINE 3 ?: T/FOLDED PATTERN
? LINE 4 ?: U/*
? LINE 5 ?: TR/?DATE?
? LINE 6 ?: S/
? LINE 7 ?: T/?C1?,D/*
? LINE 8 ?: S/
PATTERN 33 EDITING DONE
```

This is the report:

```
FOLDED PATTERN
********************
             9/9/81

GRIFFIN BREAD
456 SHEPHERD
IRV TX


FOLDED PATTERN
********************
             9/9/81

HEADER PLUMBING
1515 TRADE RD
NY NY


FOLDED PATTERN
********************
             9/9/81

NORMA'S PASTA,INC.
5332 ORLEANS
ELP TX


FOLDED PATTERN
********************
             9/9/81

HANYAK FEED STORE
674 MOODY LN
COLLEYVILLE TX


FOLDED PATTERN
********************
             9/9/81

GARCIA LOAN CO.
2125 MAMOON DR
NY NY
```

GENERATING LIST-TYPE REPORTS THAT CONTAIN DATA FROM RELATED FILES

The section "Using Variable Data in Text" on page 135 provides an introduction to the subject of related files. Their use in regular reports, however, is restricted to inclusion in the text of titles, formal headers, group indications, and footnotes.

As discussed in the section "Using Variable Data in Text" on page 135 you must first store a related file in shared files storage under the name RFn, where n = the column number in the application data file that contains the same alphameric access key as column 0 (rowid) of the related file. You may then specify any column number of the related file for extraction and inclusion in the text of a report by imbedding in the text (at this point where the related file data is to appear) the code ?RFnCi?., where i = the column number from which data is to be extracted. During report generation, the row values in the specified column of the application data file are matched up with the rowids in column 0 of the related file. When a match is found, the row value from the specified column of the related file is extracted and inserted into the text in place of the ?RFnCi? code.

Using report option 6, you can create a list-type report that contains columnar data from both the application data file and the related file for each selected record. Proceed as follows after the related file has been stored under RFn in shared files storage:

1. In the data file setup tasks for the application data file, (see the section "Setting Up the Data File Using the SETUP Command" on page 34), add columns and column headers for the related file columns that are to be extracted. These columns must have the same width as the corresponding columns of the related file, and may be numbered starting after the last column number actually used in the application data file.

2. When entering column specifications in task 2 of the section "Storing Report Setups Using SETREPORTS" on page 110, include the column numbers created in step 1, locating them in the tabular array in any desired arrangement. Determine the starting character position on the print line for each related file column included in the column specifications.

3. Select report option 6 and create the print pattern. Enter instructions for any required preprocessing of the application data file, followed by instructions for printing the title section (if any) and formal headers or column headers.

4. Create a one-line repeating pattern, as follows:

   a. Enter the repeat code **(R/)** on a separate line of the print pattern table.

   b. Enter the following coding to specify the repeating data line for each selected record:

      pn1/?rfnca?,pn2/?rfncb?,....pni/?rfnci?,d/*

      Where:

a,b,i	The related file column numbers for the first, second and ith (last) related file columns being extracted.
n1,n2,ni	The number of character positions from the left margin to the first character position on the print line for related file columns a, b, and i respectively (you can obtain this information by typing q/.
n	The column number in the application data file that ties to column 0 of the related file.
d/*	The print pattern code that commands the system to print

An example of 4(b) would be:

P12/?RF2C1?,P18/?RF2C2?,P25/?RF2C7?,D/*

Explanation: The part before the first comma will take column 1 from the related file stored as RF2 and position it 12 spaces from the left. The part between the commas will take column 2 and position it 18 places from the left. The last part takes column 7 from the related file (RF2) and positions it 25 places from the left.

For each selected record in the data file, the row values for each selected column in the data file, and the row values for the selected columns in the related files, will be displayed or printed on the same line.

CREATING THE PRINT PATTERN TABLE

Use the procedure in Figure 43 on page 156 to create a new print pattern for a folded or unfolded pattern.

STEP NO.		
1		If any of the data to be entered contains commas execute SEPARATORS command (see page 247) Proceed to step 2.
2		Refer to the task in "Storing Report Setups Using SETREPORTS" on page 110, and select report option 6 An information message appears informing you of the currently selected data entry separator. Proceed to step 3.
3	PROMPT MESSAGE:	?OTHER REP NO. IF COPYING PATTERN?:
	YOUR RESPONSE:	If you are copying the pattern from another report, enter the number of the report whose pattern you are copying, and proceed to the editing procedure in "Editing the Print Pattern Table" on page 157. If you are not copying from another report, make a blank entry, and proceed to step 4.
4	PROMPT MESSAGE:	?FOLDED PATTERN? Y/N:
	YOUR RESPONSE:	If you are creating a folded pattern, type Y and proceed to step 5. If you are not creating a folded pattern, type N and proceed to step 6.
5	PROMPT MESSAGE:	?ALL COL NO.S FOR DATA LINE n?: (folded pattern only) (n = line No. of folded pattern, starting with line 2)
	YOUR RESPONSE:	The column number of the column to be printed on the first line of the pattern was entered in the task in "Storing Report Setups Using SETREPORTS" on page 110. Beginning with the second line, respond to each prompt by typing in the column number that is to appear on the line indicated in the prompt. After the last column number of the pattern has been entered, make a blank entry to the next occurrence of the prompt.

Figure 43 (Part 1 of 2). Procedure for Creating the Print Pattern Table

STEP NO.		
6	INFORMATION MESSAGE:	CREATING PATTERN
	PROMPT MESSAGE:	?LINE n?: (n = line No. of next line to be entered, starting with line 1).
	YOUR RESPONSE:	Respond to each occurrence of this prompt by typing in the information that is to appear on the line of the print pattern table indicated in the prompt. Type L/ to obtain a listing of the currently selected column numbers in the data file, with their starting and ending character positions. The prompt ?LINE n?: is repeated after the listing is produced, requesting again that you enter data on the current line of the pattern. After all lines have been created, respond to the next occurrence of the prompt by making a blank entry. Proceed to step 7.
7		Proceed to the editing procedure in "Editing the Print Pattern Table" on page 157.

Figure 43 (Part 2 of 2). Procedure for Creating the Print Pattern Table

EDITING THE PRINT PATTERN TABLE

The procedure given in Figure 44 on page 158 is used to edit the print pattern table. Detailed procedures for use of the SETREPORTS command and selecting report options are given in the section "Storing Report Setups Using SETREPORTS" on page 110. Refer to this section, as necessary.

If this procedure is being performed immediately following the procedure performed in Figure 43 on page 156 a new table, proceed directly to step 2.

If the procedure is being performed after a pattern has been created and then selecting report option 6 in task 1 in "Storing Report Setups Using SETREPORTS" on page 110 proceed to step 1.

1	PROMPT MESSAGE:	To erase the pattern, type **Y** The pattern is erased. Perform the procedure on the preceding page to create a new pattern that replaces the erased pattern. If you are not erasing the existing pattern, type **N**, and proceed to step 2.
2	PROMPT MESSAGE:	?LINE NO. OR LIST?:
	YOUR RESPONSE:	If you want a list of the contents of the lines of the table, type **LIST**. The list is produced, and the prompt is repeated. If you have no further editing to perform, make a blank entry to exit the editing routine. Go back to task 1 in "Storing Report Setups Using SETREPORTS" on page 110 to select another report option, or to exit the SETREPORTS commands. If you want to change, insert, or delete data, type in the line number on which the change is change is to be made, or the line number below which a new line is to be inserted. Proceed to step 3.
3	PROMPT MESSAGE:	?LINE n I,D, C OR H?:

Figure 44 (Part 1 of 2). Procedure for Editing the Print Pattern Table.

YOUR RESPONSE: Do one of the following, as applicable:

a. Type **Q/** to obtain a listing of the currently selected column numbers and their starting and ending character positions. The prompt is repeated.

b. If you want to change the entire line, type in the new version. Return to step 2.

c. If you want help, type **H**. A listing defining the I, D, C, and A editing subcommands appears, and the above prompt is repeated. Return to step 2.

d. If you want to delete an existing line, type **D**. An information message appears confirming that the deletion is accomplished. Return to step 2.

e. If you want to insert a new line below the line number that appears in the prompt, type **I**. The next prompt requests you to enter the data for the new line. You can create up to 9 insert lines below each originally numbered line. Return to step 2.

f. If you want to change a word or phrase or number, type **C**. You are informed of the current contents of the line. Then, the following prompts appear:

   ?OLD?: Type in the word, number, or phrase to be changed. Return to step 2.

   ?NEW?: Type in the change.

g. To make a global change (same change on two or more lines, type **C,OLDDATA,NEWDATA,LINENO.S** where olddata = the data to be changed, newdata = the change, and lineNo.s = the line to be changed. Return to line 2.

h. If you want to repeat the previously entered edit subcommand, type **A**. Return to step 2.

Figure 44 (Part 2 of 2). Procedure for Editing the Print Pattern Table

INTRODUCTION TO CODING

This section outlines all of the coding elements that can be used in the print pattern table. The code elements are divided into the following categories:

Category	Description
A.	Codes used to specify preprocessing of the data file prior to report generation.
B.	Codes used only in repeating patterns of folded and unfolded reports.
C.	Codes used to change the column specifications that define the columns to be printed, the arrangement of the columns, and the spacing between columns.
D.	Codes used to print the currently selected columns of selected data rows from the file.
E.	Codes used to generate and print column totals for selected numeric columns, of selected data rows from the file.
F.	Codes used to print column headers from the data file setup, and formal headers, titles, and footnotes borrowed from another report, or created under Report Options 1, 2, and 4.
G.	Codes used to position and print lines of text. Note: The word text is meant to include variable data as described in the section "Using Variable Data in Text" on page 135.
H.	Codes used to generate and print fill characters between split text.
I.	Codes used for underscoring.
J.	Codes used to skip one or more print lines.
K.	Codes used to borrow a print pattern from another report.

Rules for Entering Codes into Print Pattern Table

- Column headers, formal headers, titles, footnotes, data lines, and text lines are not generated unless they are specifically called or entered within the print pattern table.
- All information to be printed on a single line of the report must be specified in a single line of the print pattern table.
  - When more than one code element is required to specify the text and data on a single print line, use a separator between code elements.
  - Underscoring requires a separate print line. Codes for underscoring must be entered on the line of the table that immediately follows the line on which the information to be underscored is specifed.
  - If more than one code element is specifed on a single line of the table, care must be taken to assure that an adequate number of print character positions is provided for each segment.

- Codes in categories A, C, F, J, and K, and the repeat code in category B, should always stand alone on a line of the print pattern table.
- When codes in categories B, D, F, J, or K are entered on a single line of the print pattern table, more than one print line may be generated. Print pattern table lines that only contain codes in categories E, F, G, H, and I always produce a single line of text in the report.
- Codes in category A are always entered first in the print pattern table, and codes in categories B and K are always entered last. The code in category C must be entered into the print pattern table to change the column setup prior to specifying headers or data lines printed under the new column setup. Codes in categories D, E, F, G, H, I, and J are always entered in the print pattern table at the point in the print sequence where the print characters or skips are to appear in the report.
- The q/ (query edit) code can be entered on any line of the print pattern. The code is not stored in the table, but evokes a listing of the currently selected column numbers with the starting and ending character positions for the listed columns.

CODING USED IN LINES OF PRINT PATTERN

The categories indicated for each of the following steps are defined above in "Introduction to Coding" on page 160.

To Define Preprocessing (Category A)

To execute sorting operations and/or a stored program:

Note: Preprocessing statements must always appear first in the print pattern, prior to any other code lines.

e/c(program No.s),s(sort statement)

(Parentheses are not actually entered in the print pattern.)

To Generate a Repeating Pattern (Category B)

Note: A repeating pattern can be initiated at any point in the print pattern. All lines appearing below the r/ code in the print pattern will be considered part of the repeating pattern. The repeating pattern will generate for each currently selected record in the data file, with the selected records being printed in their currently sorted sequence.

1. To initiate a repeating pattern:

   R/

   (Stands alone on a line of the print pattern.)

2. To indicate the point in the repeating pattern where each currently selected record is printed:

   D/*

   (May be preceded by codes for text segments to appear on same line.)

To Change the Column Specifications (Category C)

Note: The initially used set of column specifications are those entered during task 2 of "Storing Report Setups Using SETREPORTS" on page 110. You can change to a different set of column specifications any number of times within the print pattern by using the following code each time you want to make a change:

C/new col. specifications

The new column specifications are entered in the same syntax as that given in "Using LIST Command to Generate Simple Reports" on page 70.

To Print the Currently Selected Columns of Selected Rows (Category D)

Notes:

1. The currently selected columns (as described in "To Change the Column Specifications (Category C)" above) will print for each selected data row.
2. All rows specified must be among those that were selected as a result of preprocessing.
3. Rows can be specified using either row numbers or rowids. When using rowids, each rowid must be enclosed in single quotation marks.
4. You can specify a sequential set of row numbers or rowids using t (through). EXAMPLE: 1t8 = row numbers 1 through 8.

Proceed as follows:

1. Standard method:

   D/(list of row numbers or rowids)

   (Parentheses are not actually entered in the print pattern.)

2. To specify all currently selected rowids within a range of rowids when the data file has been sorted into rowid order on column 0.

   D0/'rowid1't'rowid2'

   Where: rowid1 = lowest rowid in the range and
   rowid2 = highest rowid in the range

   Note: rowid1 and rowid2 do not have to exist and/or do not have to be among the records currently selected.

To Print Total Lines for Selected Numeric Columns (Category E)

Columns Currently Selected

1. To print totals for the data records that were specified for printing (see "To Print the Currently Selected Columns of Selected Rows (Category D)" above) on the preceding line of the pattern:

   T0/SAME

2. To print totals for a selected set of rows of data from the data file:

   Notes:

a. The rows specifed for totaling are not printed by this subcommand, but may have been specified by one of the codes in "To Print the Currently Selected Columns of Selected Rows (Category D)" on page 162 above..

b. All rows specified must be among those that were selected as a result of preprocessing.

c. Rows can be specified using either row numbers or rowids. When using rowids, each rowid must be enclosed in single quotation marks.

d. You can specify a sequential set of row numbers or rowids using t (through). EXAMPLE: 1t8 = row numbers 1 through 8.

T/(list of row numbers or rowids)

(Parentheses are not actually entered in the print pattern.)

3. To exclude numeric columns from those that are totaled (numeric columns not listed are automatically included). Exclusion statement is appended to the total statement in a or b above. Separate the exclusion statement from the total statement with a space:

   E(col. No.s to exclude)

   (Parentheses are not actually entered in the print pattern.)

   Use space as separator between listed column numbers. List a sequential set of column numbers using t (through) between first and last column number of the sequential set.

4. To include numeric columns in those that are totaled (numeric columns not listed are automatically excluded). Inclusion statement is appended to the total statement in a or b above. Separate the inclusion statement from the total statement with a space.

   I(col. No.s to include)

   (Parentheses are not actually entered in the print pattern.)

   Use space as separator between listed column numbers. List a sequential set of column numbers using t (through) between first and last column number of the sequential set.

To Print Headers, Formal Headers, Titles, and Footnotes (Category F)

Notes:

1. Formal header, title, and footnote text that is borrowed, or created under report options 1, 2, and 4, can be used for any appropriate purpose in the print pattern, since the positioning of these format elements is not fixed as it is in regular reports.

2. The code N in the code elements that follow represents the number of a report from which formal headers, title, or footnotes are being borrowed. If you are not borrowing, but instead are using the formal headers, title or footnotes set up under report options 1, 2, and 4 (see the section "Storing Report Setups Using SETREPORTS" on page 110, Task 3) omit the N code from the code element so that the code element becomes simply f/, ti/, or h/.

Proceed as follows:

1. To print column headers (for the currently selected columns) that are contained in the data file setup:

Borrowed	**Not Borrowed**
	h/

2. To print formal headers:

    fN/ or f/

3. To print the title section:

    tiN/ or ti/

4. To print footnotes:

    nN/ or n/

To Position and Print Lines (with or without Variable Data) (Category G)

Notes:

1. Use separator (comma or other character) between text code elements on the same line of the print pattern.
2. See category H "Printing Split Text or Split Text and Data (Category H)" on page 165 for split text.
3. The phrase 'text' in the examples that follow means the actual next and/or variable data you want to print.
4. See the section "Using Variable Data in Text" on page 135 for the use of variable data in text.

Proceed as follows:

1. Left-justify the text:

    T/text

2. Right-justify the text:

    TR/text

3. Center the text on the page:

    TC/text

4. Position the start of the text a specified number (N) of character positions from the left page margin.

    PN/text

Printing Split Text or Split Text and Data (Category H)

Notes:

1. 'char' means the character that is used as the fill character between the split text. If no character is specified, the dot character (.) is used.

2. 'text/datacode' = any of the text or data code elements given in categories B, D, and H,

   'datacode' = any of the data elements given in categories
   B and D.

Proceed as follows:

1. To fill from a specified character position number back to the first non-blank character on the line:

   T/+N+char
   OR
   text/datacode,T/+N+char

2. Same as a above, except fill is turned on for this and succeeding lines of the print pattern until a print pattern line is created in which fill turnoff is specified (see items c and d below):

   T/+N+char+
   OR
   text/datacode,T/+N+char+

3. Suppress fill code (turned on as described in b above) for this line only::

   T/TT
   OR
   text/datacode,T/++

4. Turn off fill code (turned on as described in b above):

   compact.

   T/+++

   OR

   text/datacode,T/+++

5. Place a dollar sign in the high-order position of the number in the single numeric column on the right side of the line, and fill with the fill character specified from the dollar sign back to the first non-blank character on the line:

Note: Commonly used for check protection.

text/datacode,T/+char+, datacode

Examples:

t/+50+,d/1 2 3
d/1 2 3,t/+50+

As indicated, the sequence of use of fill in a combined statement is not critical. After the rest of the output (three data lines in the example) has been assembled, the fill is applied. In this case the fill characters

	would extend from the fiftieth position back to the first non-blank character in each of the three lines.
t/+50+#+,d/4	Three plus signs; turn fill "on" for this and succeeding lines; the pound is indicated as the optional character.
d/5,t/++	Suppress fill for this line only.
t/+++ or p/+++	Turn fill off.
t/?c20?,P65/?c4?,t/+++	Left justify the current row element from column 20; position the money amount from column 4 to character position 65 on the line; check protection with "*" in between; put a dollar sign flat up against the leftmost number. This special configuration is for a single line only, and assumes that a single numeric column is either positioned at the right, as shown, or that report is formatted with space between whatever text is printed on the left, and the numeric column.

To Print a Line of Underscoring (Category I)

Note: 'char' means the character that is used as the underscore character. If no character is specified, the dash character (-) is used.

Proceed as follows:

1. To underscore the column headers specified on the preceding print pattern line:

   UH/char

2. to underscore the entire print line specified in the preceding print pattern line:

   U/char

3. To underscore the numeric columns below the last record that was specified for printing using one of the code elements in "To Print the Currently Selected Columns of Selected Rows (Category D)" on page 162 above:

   Note: Specific numeric columns can be included or excluded from underscoring by appending to the underscoring statement (separated by a space) an inclusion or exclusion statement in the format described in c and d of "To Print Total Lines for Selected Numeric Columns (Category E)" on page 162 category E above.

   UN/char

4. To underscore below the totals specified for printing on the preceding print pattern line using one of the code elements in "To Print Total Lines for Selected Numeric Columns (Category E)" on page 162 category E above:

   UT/char

To Skip One or More Print Lines (Category J)

Note: 'char' means character or text phrase (BUY BOND, for instance) that is to be used fill the lines that are skipped. If no character is specified, the skipped lines are blank.

Proceed as follows:

1. To skip one line:

   S/char

2. To skip N lines:

   SN/char

3. To skip to the bottom of the form:

   SB/char

To Borrow an Entire Print Pattern from Another Report (Report N) (Category K)

Note: Any of the code elements specified in any of the sections above from "To Define Preprocessing (Category A)" on page 161 through "To Skip One or More Print Lines (Category J)" above can appear on print pattern lines that precede the print pattern line that specifies the borrowed print pattern.

BN/

GENERATING PREDEFINED REPORTS USING REPORTS COMMAND

This section tells you how to generate any predefined report that was set up by the SETREPORTS command. Using the REPORTS command, you can specify any number of reports to be run in a single operation.

TASK STEPS

1. Refer to the section "Setting Up Report Output Controls" on page 248, and assure that all report output control settings are compatible with the reports being generated.
2. Refer to Chapter 3, in the section, and perform any required processing of the data file that is not specified as part of the preprocessing in the report setups.
3. If hard-copy output is to be produced, refer to the section "Printer Setup" on page 191, and prepare the printer.
4. Type **REPORTS**.
5. The information message NAME SEPARATOR IS, appears, notifying you to use a comma as a separator between report names.
6. The information message appears: ?REPORT NO.S/NAMES?: Respond by typing in the number(s) or name(s) of the reports to be generated. If more than one report number is entered, provide a space between each report number. If more than one report name is entered, enter a comma as separator between adjacent names. Reports should be listed in the order that you want them to be produced.

Note: In some cases where several reports are generated at once, one of the reports may include preprocessing that is required for several other reports. In this case, the report that specifies the preprocessing should be entered first in the listing of report numbers or names.

7. The prompt message appears: ?SET FORM?: If required, set the paper form to the top of a new page, or clear the display screen. Strike the ENTER or RETURN key to initiate the printing operation.

8. In display terminals that have the full-screen edit capability, after report generation is completed, the prompt message appears: ?ENTER SUBCOMMAND OR HELP?: If this prompt appears, type **END** to terminate the report generation operation.

DETAILED JOB FLOW AND WORKSHEETS FOR REPORTS

This section explains the job flow for setting up and generating reports. See the section "Appendix A. Overall Job Flow" on page 271 for a description of overall job flow, and the general approach to job definition, utilizing job flow diagrams and worksheets. The worksheet numbering scheme is also described in the section "Appendix A. Overall Job Flow" on page 271

- The detailed job flow diagram (Figure 45 on page 170) shows, in the correct sequence, all of the work packages involved in setting up and generating reports, using the LIST, REPORTS, and PLOT commands.

  A reports job summary sheet (Figure 46 on page 171) and a key (Figure 47 on page 172) to the tasks shown in the job flow diagram (Figure 45 on page 170) are also included.

- The following worksheets, referenced in the job flow diagram (Figure 45 on page 170) are included in this section.

WORKSHEETS

- The following worksheets are included in this work package:

  Report Output Controls and Printer Setup (Figure 48 on page 174). Used to set up page dimensions, line spacing, data stamp, page numbering, and handling of numeric column data in displayed or printed reports. If a hard-copy of the report is to be produced, provides printer setup information.

  Setup for LIST Reports (Figure 49 on page 175). Provides complete setup details for reports that are generated using the LIST command.

  SETREPORTS Entries Common to All Reports (Figure 50 on page 176). Provides setup details for Report Options 1, 2, 3, 4, 7, and 8 plus column specifications, report number, and report name. These elements are common to both regular and patterned reports.

  Print Options for Regular Reports (Figure 51 on page 177). Used to enter print option selections for regular reports.

  REPORTS Command Worksheet (Figure 52 on page 178). Used to specify generation of reports whose setups are stored under the SETREPORTS command.

Using Variable Data in Text (Figure 53 on page 179). Used to document analysis of variable data elements used in report setups.

Report Option 6 (Patterned Reports) Worksheet (Figure 54 on page 180). Used to enter the print pattern setup for patterned reports.

Page Dimensioning and Grid Sizing and Scaling (Figure 55 on page 181). Analysis worksheet used to define page dimensions, grid sizing, and grid scaling for graphs and bar charts. Figure 55 on page 181 should be the analysis tool for determining the entries to be made on the worksheets Figure 48 on page 174 and Figure 56 on page 182.

PLOT/JOBNAME Setup for Graphs and Bar Charts (Figure 56 on page 182). Provides setup entries for generating graphs and bar charts. Setup can be stored under JOBNAME command, or entered at report generation time, using PLOT command.

EXPLANATION OF JOB FLOW DIAGRAM AND WORKSHEETS

The job flow diagram (Figure 45 on page 170) provides the detailed job flow for report setup and generation at the points in the overall job flow diagram (Figure 74 on page 273) (see the section "Appendix A. Overall Job Flow" on page 271) where these tasks are identified.

- As shown on the job flow diagram, the operations and tasks involved in creating/changing stored setups are distinctly separate from the tasks involved in generating reports.

- For each report setup or report generation task defined as part of a job on the overall job flow diagram (Figure 74 on page 273 and Job Summary Sheet (Figure 75 on page 278), you should mark up a copy of the reports job flow diagram (Figure 45 on page 170) to indicate the flow path that will actually be used to accomplish the job. Then, prepare a reports job summary sheet (Figure 46 on page 171) to identify by the task letter codes on the flow diagram) the specific sequence of tasks to be performed to accomplish the job. For each identified task, indicate the section and worksheet numbers that will be used to accomplish the task. Finally, prepare the indicated worksheets for each listed task.

- The marked-up reports job flow diagram (Figure 45 on page 170) and the completed reports job summary sheet (Figure 46 on page 171) and worksheets, constitute a complete job definition sub-package for report setup and report generation tasks called out in jobs that are defined on the forms provided in the section "Appendix A. Overall Job Flow" on page 271

- To assist you in using the Figure 45 on page 170 and Figure 46 on page 171, this section contains a complete listing of the tasks shown on the job flow diagram, (see Figure 47 on page 172). For each listed task, the task letter code (indicated on the diagram) is given, together with the applicable procedures and worksheets that are used for the task.

Job ________________
Rpt. No.(s) ________________
Rpt. Name ________________
Rpt. Title ________________

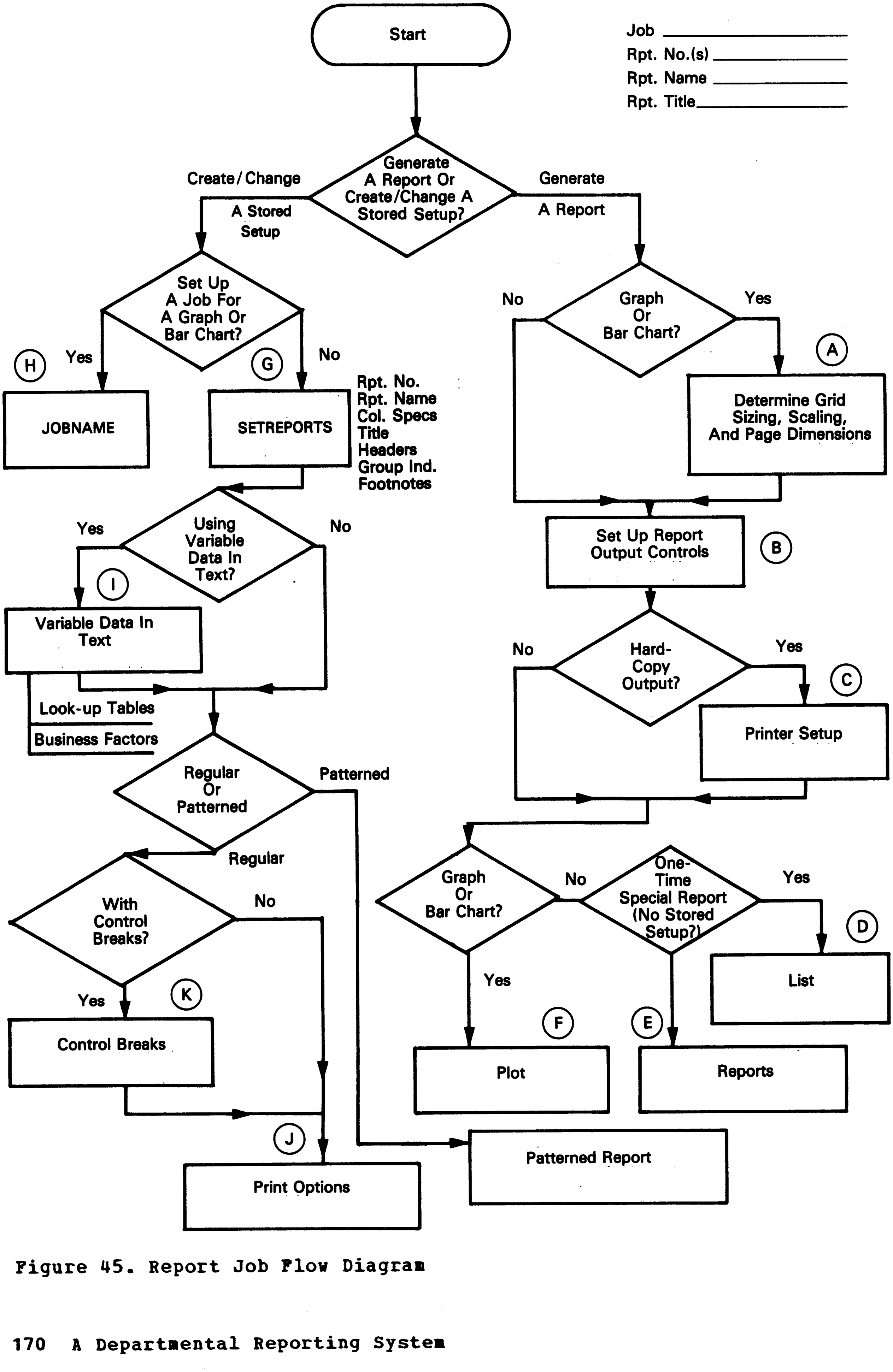

Start
Generate A Report Or Create/Change A Stored Setup?
Create/Change A Stored Setup
Generate A Report
Set Up A Job For A Graph Or Bar Chart?
Yes
H
JOBNAME
No
G
SETREPORTS
Rpt. No.
Rpt. Name
Col. Specs
Title
Headers
Group Ind.
Footnotes
Using Variable Data In Text?
Yes
I
Variable Data In Text
No
Look-up Tables
Business Factors
Regular Or Patterned
Patterned
Regular
With Control Breaks?
Yes
K
Control Breaks
No
J
Print Options
Patterned Report
Graph Or Bar Chart?
No
Yes
A
Determine Grid Sizing, Scaling, And Page Dimensions
Set Up Report Output Controls
B
Hard-Copy Output?
No
Yes
C
Printer Setup
Graph Or Bar Chart?
Yes
F
Plot
No
One-Time Special Report (No Stored Setup?)
E
Reports
Yes
D
List

Figure 45. Report Job Flow Diagram

JOB ____________________

OVERALL JOB
SUMMARY SHT NO. __________

TASK NO. ______________

LIST TASKS IN SEQUENCE THEY ARE TO BE PERFORMED DURING TERMINAL SESSION

TASK CODE LETTER	TASK DESCRIPTION	REFERENCE SECTION(S)	REFERENCE WORKSHEETS	COMMENTS AND REPORT NO./NAMES OR TITLES

Figure 46. Reports Job Summary Sheet

TASK CODE	TASK DESCRIPTION	PROCEDURE PAGE	WORKSHEET(S)
A	Determine grid sizing, grid scaling, and page dimensions to be used in generating a graph or bar chart. This information is used to complete Worksheet Figure 48 and for certain entries on Worksheet Figure 56.	183	Figure 55
B	Sets up Output controls for generating any report using the REPORTS, LIST, or PLOT command.	248	Figure 48
C	Sets up printer for a hard-copy report either before report is generated, or after it report is displayed on a terminal with full-screen edit.	191	Figure 48
D	Performed when LIST command is is used to generate report.	70	Figure 49
E	Performed when the REPORTS command is used to generate report with setup stored by SETREPORTS command.	167	Figure 52

Figure 47 (Part 1 of 2). Key To Tasks Shown On Reports Job Flow Diagram

TASK CODE	TASK DESCRIPTION	PROCEDURE PAGE	WORKSHEET(S)
F	Performed when the PLOT command is used to generate graph or bar chart.	183	Figure 56
G	Used for both regular and patterned reports, to enter the report number and name, column specifications, and data entered under report options 1, 2, 3, 4, 7, and 8 of SETREPORTS command.	110	Figure 50
H	Used to store a setup for a graph or bar chart, using the JOBNAME command.	183	Figure 56
I	Performed when variable data is used in text of report set up under SETREPORTS.	135	Figure 53
J	Performed to set up print options for regular report being set up under SETREPORTS.	126	Figure 51
K	Performed when regular report with control breaks is being set up under SETREPORTS command.	139	Figure 51
L	Performed to create/edit print pattern for patterned report set under SETREPORTS.	145	Figure 54

Figure 47 (Part 2 of 2). Key To Tasks Shown On Reports Job Flow Diagram

JOB _______________ APPLICATION NAME _______________

TASK NO.____________ COMMAND: _______________________
(QUERY, LIST, REPORTS, or PLOT)

REPORT OUTPUT CONTROLS

SETPAGE: Lines/Page _____ Top Margin _____ Bottom Margin _____

Automatic Page Numbering _____ Automatic Date Stamp _____

Line Width _____

SETSPACE: Spacing Between Lines _____

SETSPECIAL: Symbol for Zero Entries _____ Commas _____ (on of off) Parens _____ (on of off)

SETDEC:

ROWID	COL. NO.	NO. OF DECIMAL PLACES

FOLDPOINT _______________

Only if width is greater than 130 characters.

PRINTER SETUP

HI-SPEED PRINTER: ___________ (on or off) _______________ Destination if on

(Execute PRINTER to change Dest.)

PRINTER ________

_______________ COPIES (if on)

PRINTERON ______

PRINTEROFF _____

HARDCOPY TERMINAL: HOLDPAGE __________

LOCAL PRINTER: OFFLINE ___________ COPY __________

EXECUTE AFTER REPORTS ARE GENERATED

EXPRESS MODE

Figure 48. Report Output Controls and Printer Setup - Worksheet

JOB ______________

TASK NO. _________ APPLICATION NAME _________

PREPROCESSING BEFORE EXECUTING LIST:

COMPUTE PGM NO. ______________________
(Use COMPUTE)

SELECTION STATEMENT ___________________
(use SELECT)

SORTING STATEMENT _____________________
(Use SORT)

UNSTORED CALCULATION STATEMENTS ___________________
(Use CALCULATE)

____

____

COLUMN SPECIFICATIONS ENTERED UNDER LIST:

Suppress Column Numbers _________ (enter n to suppress)

Indent from Left Margin to First Column (________)

Non-Standard Uniform Spacing _________ (blank if standard spacing (1 char.) is used)

Column Numbers in the Report ____
(List cols in sequence you want them to appear. Enter uniform spacing overrides in parentheses between column numbers where spacing is non-uniform value)

REPORT TITLE ENTERED UNDER LIST: ____

(May not exceed one line in length)

EXPRESS MODE:

Figure 49. Setup for LIST Reports - Worksheet

JOB ____________

TASK NO. ________

APPLICATION NAME ________

REPORT NO. ____________
(Task 2)

REPORT NAME ____________
(Task 2)

COLUMN SPECIFICATIONS ________________________________
(Task 2)

REPORT OPTIONS ______________________________________
List the options being used (Task 1)

TEXT FOR OPTIONS 2 (TITLE), 1 (FORMAT HEADERS), 3 (GROUP INDICATIONS), and 4 (FOOTNOTES)
(Task 3)

OPT NO.	ROW NO.	COPY FROM	TEXT CONTENTS	
		RPT. NO.	INITIAL OR CURRENT	CHANGE TO
EXPRESS MODE:				

Figure 50. SETREPORTS Entries Common to All Reports - Worksheet

JOB ____________

TASK NO. ________

APPLICATION NAME ________

(1) REPORT NO. ____________

(2) REPORT NAME ____________

(3) PRINT OPTIONS ____
(OPTION 5) List print options being used in numerical sequence

(4) DETAILS FOR SELECTED PRINT OPTIONS

OPT. NO.	DESCRIPTION	ENTRIES TO PROMPTS
1	PREPROCESSING	PREPROCESSING STATEMENT ____________ ________________________________
2	LIST	None
3	CONTROL BREAKS	MAJOR BRK. COL NO. ________ MINOR BRK. COL NO. ________
4	TOTALS	ALL ________ INCLUDED (I) ________ EXCLUDED (E) ________
5	PGM AT CONTR.BRK.	PROGRAM NO. ________
6	SUMMARY	None
7	OVERFLOW ON BRK.	MAJOR ONLY ________ MAJOR & MINOR ________
8	NO HEADERS	None
9	BORROWING	TITLES (T) ________ HEADERS (H) ________ GRP. IND (G) ________ FOOTNOTES (F) ________
10	FOOTNOTES ON MAJOR BRKS ONLY	None.

EXPRESS MODE:

Figure 51. Print Options for Regular Reports Worksheet

JOB ______________ APPLICATION NAME __________

TASK NO. __________

PREPROCESSING BEFORE EXECUTING REPORTS:

COMPUTE PGM NO. __________________
(Use COMPUTE)

SELECTION STATEMENT _______________
(Use SELECT)

SORTING STATEMENT __________________
(Use SORT)

UNSTORED CALCULATION STATEMENTS _________________________
(Use CALCULATE)

____

____

REPORT NO./NAMES TO BE GENERATED ____
(List in desired sequence; use comma between names)

EXPRESS MODE:

Figure 52. Reports Command Worksheet

JOB ____________ APPLICATION NAME ____________

TASK NO. ____________ REPORT NO. ____________

SYSTEM-DEFINED VARIABLES	USED IN (SPECIFY BELOW)						
(LIST EACH NAME) (DATE, DATES, DATEL, ROWS, TROWS, PAGENO., REPNO. LEVEL)	RPT. NO.	LINE NO.	TITLE	HDRS	GRP. IND	FOOT-NOTE	PRINT PATTERN
BUSINESS FACTORS (LIST EACH NAME)	////////	////////	////////	////////	////////	////////	////////
TABLES (LIST EACH NAME)	////////	////////	////////	////////	////////	////////	////////
CONTROL BREAK COLUMN ROW VALUE (LIST COLUMN NO.)	////////	////////	////////	////////	////////	////////	////////
RELATED FILES	////////	////////	////////	////////	////////	////////	////////

Filename	Assigned Related Filename (RF Prefix)	Related File Col. No.							

Figure 53. Using Variable Data In Text - Worksheet

JOB ______________

TASK NO. __________

NAME OF APPLICATION __________

REPORT NO. ________________

REPORT NAME ________________

INITIAL COL. SPECIFICATIONS ________________________
(From Worksheet Figure 50

(This is the
Data Line 1
for folded
patterns)

FOLDED PATTERN? ________________ (If Yes, enter column No.s below)

DATA LINE 2 ____________________

DATA LINE 3 ____________________

DATA LINE 4 ____________________

DATA LINE 5 ____________________

PRINT PATTERN

?LINE n?	Print Pattern Entry on Line n		Edit Code If Changing the Pattern (I, D, C, or A)
	INITIAL OR CURRENT	CHANGE TO	
EXPRESS MODE:			

Figure 54. Report Option 6 (Patterned Report) Worksheet

Horizontal Sizing:

1. Total number of columns or (if data is transposed) rows being plotted .... __________

2. If a bar chart is being generated, enter the number 1 on the line at the right. If a graph is being generated, enter the number 0 .... __________

3. Sum Items 1 and 2 to obtain the total number of vertical grid lines .... ☐

4. Obtain Line Width for SETPAGE: (Item 3 X 10) + 30 .... ☐

LINE WIDTH

Vertical Sizing:

5. Determine the number of data lines (1 per row or 1 per column if data is transposed) that appear in the legend below the grid .... __________

6. Determine the total number of text lines in the report title, and in the X axis title .... __________

7. Obtain total number of print lines required outside plotting grid (Item 5 + Item 6 + 9) .... __________

8. Obtain maximum value that you expect to plot .... __________

9. Obtain minimum value that you expect to plot .... __________

10. Obtain the range of values to be plotted by subtracting Item 8 from Item 9, and rounding off the difference (range) to the next higher value that contains a 0 or 5 in the least significant digit .... __________

11. Determine an appropriate scaling value (the incremental magnitude between horizontal grid lines) for the range entered in Item 10. Adjust the minimum and maximum values in Items 8 and 9 (while assuring that all expected values to be plotted fall between the adjusted min-max values) so that the quotient that results when the scaling value if divided into the adjusted range is a whole number. The adjusted range is equal to the difference between the adjusted maximum value (top grid line) and the adjusted minimum value (Y axis origin):

☐	–	☐	=	__________	÷	☐	=	☐
Adj. Max. Value (Top Grid Line)		Adj. Min. Value (Y-Axis Origin)		Adj. Range		Selected Scaling Value		REQ'D NO. OF HORIZ. GRID LINES

12. Multiply the number of horizontal grid lines obtained in Item 11 by 5 to obtain the total number of print lines required in the plotting grid .... __________

13. Add the value entered in Item 7 to the value entered in Item 12 to obtain the total number of print lines required in the report .... __________

TOTAL PRINT LINES

14. Subtract the total number of print lines entered in Item 13 from the desired lines per page setting that you want to enter under SETPAGE to obtain the total number of lines in the top and bottom margins:

☐	–	☐	=	☐
LINES PER PAGE		Item 12		No. of Lines in Top and Bottom Margins

15. Split the total number of lines obtained in Item 14 for the top and bottom margins, and specify the top and bottom margin settings:

☐
TOP MARGIN

☐
BOTTOM MARGIN

NOTE: The boxed-in values in Items 4, 14, and 15 are entered under SETPAGE, and should appear in the copy of worksheet prepared for the bar chart or graph. The boxed-in values in Items 3 and 11 are entered in the Layout Section of worksheet prepared for the bar chart or graph.

Figure 55. Page Dimensioning, Grid Sizing, and Scaling for Graphs/Bar Charts - Worksheet

PLOT/JOBNAME Setup for Graphs or Bar Charts

JOB

TASK NO. APPLICATION NAME

TYPE (Graph or Bar Chart) GRAPH/BAR CHART TITLE

1. JOB NAME (Name assigned to job setup, if applicable)
2. NUMERIC COLUMN NUMBERS BEING PLOTTED
3. ROWIDS BEING PLOTTED or SELECTED
4. OPTIONS: Type (D = Graph; H = Bar Chart) Flip (F) (blank if not transposed) Y Axis Origin 0 (See layout below)
5. ALPHAMERIC COLUMN NUMBER TO BE USED FOR ROW DESCRIPTORS
6. TITLE (Use + symbol to denote line breaks. Enter a comma after last character)
7. Y-AXIS TITLE (Use + symbol to denote line breaks. Enter a comma after last character)
8. X-AXIS TITLE (Use + symbol to denote line breaks)
9. If SELECTED was selected in item 3, enter selection statement to be executed before PLOT is executed: (Use SELECT command)
10. If PLOTCONTROL SYMBOLS ARE TO BE CHANGED, USE EDIT COMMAND TO CHANGE SYMBOLS BEFORE PLOT IS EXECUTED
    PLOT CONTROL SYMBOLS (List in actual sequence)

LAYOUT SKETCH

TITLE:

MAX VALUE

Y AXIS

Units

Scale (Units/Grid Step)

No. Horiz Grid Lines

Origin

X AXIS

No. Vert. Grid Lines

X TITLE

Y TITLE

List rowids in sequence listed in step 3

LEGEND

Note: In Legend below, list X axis symbols in numerical sequence, and Plot symbols in sequence listed in step 10.

ROWID	DESCRIPTOR	PLOT OR X AXIS SYMBOL
NUMERIC COLUMN	COLUMN HEADER	PLOT OR X AXIS SYMBOL

List col. no.s in sequence listed in step 2

Figure 56. PLOT/JOBNAME Setup for Graphs or Bar Charts -- Worksheets

SETTING UP AND GENERATING GRAPHS AND BAR CHARTS

This section tells you how to set up and generate graphs and bar charts (histograms) that are derived from selected information in the data file. You use the PLOT or JOBNAME command to select the records and columns to be included, and to set up the format of the graph or bar chart

The section includes a worksheet for determining page dimensions, grid size, and scaling.

You may recall (see data file specifications in the section "ADRS II Specification Data" on page 18 that each row/column coordinate of data file defines a component (numeric value for numeric columns). Graphs and bar charts plot the values of components in numeric columns of a data file.

Graphs	Are point plots of the magnitude of numeric values in a selected set of data file components.
Bar charts	Are simply point plots in which a vertical column extends from the horizontal (X) axis to the plot point.

STRUCTURE AND SETUP

- You select the rows and columns to be plotted during setup.
- Vertical (Y axis) grid lines are labeled (and the Y axis is titled) to indicate the magnitude of the components being plotted.
- Value of Y axis origin (where it intersects the X axis) is specified during setup.
- Plot points (graphs) or vertical bars (bar charts) are indicated by letter plotting symbols, with a different symbol being used for each row being plotted.
- During setup, you specify an alphameric column number whose row values are to be used as the row descriptors. The column headers for the selected numeric columns are used as the column descriptors.
- A legend is produced that equates the number and letter symbols to the row and column descriptors. If data is not transposed, row descriptors are equated to the letter plotting symbols, and column descriptors are equated to the number (X axis) symbols.
- The legend for graphs also includes a table of the values plotted in the graph.
- During setup, you enter a title for the graph or bar chart, and titles for the Y and X axes.
- The number of horizontal and vertical grid lines is determined by page dimensions established under SETPAGE.

TASK STEPS

Note: Rows can be selected in advance using the SELECT command, or can be listed while entering data under the PLOT or JOBNAME command.

1. Use the worksheet Figure 55 on page 181 in the section "Detailed Job Flow and Worksheets For Reports" on page 168 to perform the analysis of grid sizing, grid scaling, and page dimensioning. The results of

this analysis are used to set up the page dimensions under SETPAGE (see the section "Setting Up Report Output Controls" on page 248), and to set up the grid layout in the worksheet Figure 56 on page 182 (also contained in the section "Detailed Job Flow and Worksheets For Reports" on page 168. Then perform the printer setup, if required (see the section "Printer Setup" on page 191).

2. Type **PLOT** or **JOBNAME**. If **PLOT** is typed, the graph or bar chart is generated after step 6 below.

3. Enter the set of columns and rows that define the components to be plotted.

4. Select type of plot (graph or bar chart), whether data is to be transposed, and the value of the Y axis origin.

5. Enter the number of the alphameric column whose row values are to be used as row descriptors.

6. Enter the titles for the report, and titles for the Y and X axes.

7. If **JOBNAME** was typed in step 2, type **PLOT** to generate the graph or bar chart, then enter the name of the job that contains the plot setup.

MORE ABOUT GRAPHS AND BAR CHARTS

- The rows (records) to be plotted can be selected using the SELECT command (see the section "Selection" on page 77) prior to executing PLOT, or can be specified during data entry for the PLOT or JOBNAME COMMAND.

- The setup for a graph or bar chart can be predefined using JOBNAME command. The detailed procedure is provided in this section.

- The system variable PLOTCONTROL stores the letter symbols used for plotting. Also stored under PLOTCONTROL are the symbols used in generating the grid lines and axes, and the format symbols above and below the column headers in the legends of graphs. PLOTCONTROL has two rows (lines), as follows:

  - Row 1 contains the symbols used for plotting (initialized with symbols ABCDEFGHIJKLMNOP....).

  - Row 2 contains the symbols for generating the grid lines, axes, and column header overscoring and underscoring, in the following sequence:

    - Character 1 = Vertical grid line symbol (initialized as the :)

    - Character 2 = Horizontal grid line symbol (initialized as the -)

    - Character 3 = Grid intersection symbol (initialized as the +)

    - Character 4 = Y axis line symbol (initialized as the :)

    - Character 5 = X axis line symbol (initialized as the -)

    - Character 6 = Symbol for overscoring/underscoring column headers in the legend of graphs (initialized as the -)

The symbols stored under PLOTCONTROL can be changed as desired, using the EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102 for details).

- When generating bar charts, the vertical bar columns can be made more than one character wide by specifying each row number or (if transposed) column number two or more times in succession. For example, the following entry under the column or row number prompt would produce vertical bar columns that are two characters wide:

  1 1 2 2 3 3 4 4 (rows or columns 1 through 4)

- When entering titles for the graph or bar chart, and titles for the X and Y axes, use the plus (+) symbol to indicate the end of each line within the same title, and use the separator symbol (normally a comma) to separate the three titles. If commas are used within the text of the titles, the separator must be changed prior to entering the titles, using the SEPARATORS command (see the section "Setting Up the Data File Using the SETUP Command" on page 34 for details).

- Rows and columns are transposed in the graph or bar chart by entering the FLIP subcommand (F) when specifying the plot options. If data is not transposed, each selected row is represented by a different plotting symbol, and each selected column is represented by a different number symbol on the X axis. If data is transposed, each selected row is represented by a different number symbol on the X axis, and each selected column is represented by a different plotting symbol.

- The first character of each Y axis title line will be aligned with the top horizontal grid line. The last character of each X axis title line will be aligned with the right-most vertical grid line. Arrow symbols can be included in axis titles using the = symbol for the body of the arrow, and using the > for the arrowhead.

STEP NO.		
1	Type **JOBNAME**	
2	PROMPT MESSAGE	?LIST n EXISTING JNS?: (n indicates the total number of jobnames presently defined).
	YOUR RESPONSE:	If you want a list of currently defined jobnames, with their specifications, type **Y**. The list is produced. Proceed to step 3.
3	PROMPT MESSAGE:	?JOBNAME?
	YOUR RESPONSE:	Type in new jobname being defined, being sure that name does not duplicate the name of an existing jobname in the list. Proceed to step 4.
4	PROMPT MESSAGE:	?1-FASTROW/2-INPUT/3-PLOT/4-SHIP; ONE NUMBER?:
	YOUR RESPONSE:	Type **3** and proceed to step 5.
5	PROMPT MESSAGE:	?COL NO.S?:
	YOUR RESPONSE:	Type in the column numbers of the numeric columns the data to be plotted, as described in Figure 58 on page 188. Proceed to step 6.
6		Perform steps 3 through 6 of the setup procedure for the PLOT command in Figure 58 on page 188, responding to each prompt exactly as you would if you were entering the plotting setup under the PLOT command. At the completion of step 6 in the procedure for the PLOT command, proceed to step 7 below.
7	INFORMATION Message:	......DONE (the name you assigned in step 3 above precedes the word DONE in the message)
	PROMPT MESSAGE:	?JOBNAME? (asks you if you want to define another job)
	YOUR RESPONSE:	If there are no more jobs to define, make a blank entry. Proceed to step 8. If you want to set up another job, return to step 3.

Figure 57 (Part 1 of 2). Defining a PLOT Setup Using the JOBNAME Command

STEP NO.		
8	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE to save the job setup.
9		To delete the job that was set up in steps 1 through 8 above, perform steps 1, 2, and 3 above. In step 3, respond to the prompt message by typing in the name of the job to be deleted. The information message DELETED should appear, confirming that the job has been deleted. Then, perform step 8 above.

Figure 57 (Part 2 of 2). Defining a PLOT Setup Using the JOBNAME Command

STEP NO.		
1	Type **PLOT**.	Proceed to step 2.
2	PROMPT MESSAGE:	?COL NO.S OR JOBNAME?:
	YOUR RESPONSE:	If a defined plot is being used, enter the name of the setup that was established during execution of the JOBNAME. Proceed to step 7. If you are not using a defined plot setup, type in the column numbers of the columns that contain the numeric data to be plotted. Enter a space (DO NOT use separators) between each column number. Column numbers should be entered in the sequence that you want the letter or number symbols (starting with A or 1) to be assigned to the columns. Proceed to step 3.
3	PROMPT MESSAGE:	?ROWIDS OR SELECTED?:
	YOUR RESPONSE:	If the rows (records) to be plotted have been selected from the data file by a selection statement, type **SELECTED** and proceed to step 4. If rows have not been selected by a selection statement, type in the row numbers or the rowids for the rows to be plotted. If you use rowids instead of row numbers, enclose each rowid in single quotation mark and proceed to step 4.
4	PROMPT MESSAGE:	?ENTER OPTIONS: D-DATA/ H-HISTO/ F-FLIP:
	YOUR RESPONSE:	Type in the following, in the sequence listed and proceed to step 5: a. D for graph or H for bar chart. b. If you want the row descriptor selected in step 5 to represent the number symbols on the X axis, type F followed by a space. If you want the row descriptor selected in step 5 to represent the letter (plotting) symbols, enter a space. c. Type the letter O (for origin, followed by the value to be assigned to the Y axis origin.
5	PROMPT MESSAGE:	?ENTER DESCRP. COL NO.?:
	YOUR RESPONSE:	Type in the number of the column whose column entries will provide the row descriptors for the selected rows. Proceed to step 6.

Figure 58. Setting Up and Generating a Report, Using PLOT Command

STEP NO.		
6	PROMPT MESSAGE:	?TITLES: TOP,Y-AXIS,X-AXIS: or ?MORE TITLES?:
	YOUR RESPONSE:	Type in the following, in the sequence listed and proceed to step 7 (make blank entry for ?MORE TITLES? prompt after all titles are entered): a. Report title. If more than one line in length, use the plus symbol (+) to indicate the end of each line. Enter a comma following the last character of the title. b. Y-Axis Title. c. X-Axis Title.
7	PROMPT MESSAGE:	?SET FORM?:
	YOUR RESPONSE:	Set paper to top of form or clear screen. Strike ENTER or RETURN key to initiate generation of the graph or bar chart. The graph or bar chart is now generated. Proceed to step 8.
8	PROMPT MESSAGE:	?ENTER SUBCOMMAND OR HELP?: (This prompt only appears on display terminals with the full-screen edit capability after generation of the graph or bar chart is completed.)
	YOUR RESPONSE:	Type **END** to exit the PLOT command.

Figure 59. Setting Up and Generating a Report, Using PLOT Command

TWO EXAMPLES OF THE PLOT COMMAND

EXAMPLE 1

```
     PLOT
? COL NO.S OR JOBNAME ?: 1 1 2 2 3 3
? ROWIDS OR SELECTED ?: 1 T 5
? ENTER OPTIONS: D-DATA/ H-HISTO/ F-FLIP?: HF
? ENTER DESCRP. COL NO. ?: 15
? TITLES: TOP,Y-AXIS,X-AXIS ?: ANALYSIS BY MONTH+JANUARY+
? MORE TITLES ?: THROUGH+MARCH,M I L L I O N S+
? MORE TITLES ?: ::::::::::::::
? MORE TITLES ?:
? SET FORM
```

```
                         ANALYSIS BY MONTH
                              JANUARY
                              THROUGH
                               MARCH

  M:    100:---------+---------+---------+---------+AA----
   :       :         :         :         :         :AA
  I:       :         :         :         :         :AA
   :       :         :AA       :         :         :AA
  L:       :         :AA       :         :         :AA
   :     75:---------+AA-------+---------+---------+AA----
  L:       :         :AA       :         :         :AA  CC
   :       :         :AABB     :         :         :AABBCC
  I:       :         :AABBCC   :    CC   :AA       :AABBCC
   :       :         :AABBCC   :    CC   :AABB     :AABBCC
  O:     50:---------+AABBCC---+----CC---+AABB-----+AABBCC
   :       :         :AABBCC   :    CC   :AABBCC   :AABBCC
  N:       :         :AABBCC   :    CC   :AABBCC   :AABBCC
   :       :  BB     :AABBCC   :  BBCC   :AABBCC   :AABBCC
  S:       :  BB     :AABBCC   :AABBCC   :AABBCC   :AABBCC
         25+--BBCC---+AABBCC---+AABBCC---+AABBCC---+AABBCC
           :  BBCC   :AABBCC   :AABBCC   :AABBCC   :AABBCC
           :  BBCC   :AABBCC   :AABBCC   :AABBCC   :AABBCC
           :AABBCC   :AABBCC   :AABBCC   :AABBCC   :AABBCC
           :AABBCC   :AABBCC   :AABBCC   :AABBCC   :AABBCC
          0:AABBCC---+AABBCC---+AABBCC---+AABBCC---+AABBCC
            1         2         3         4         5

DATA TYPE
 A) JAN          B) FEB            C) MAR

COLUMN DESCRIPTION
 1) 1978 ACTUAL   2) 1979 ACTUAL   3) 1979 FORECAST 4)1979 BUDGET
 5) 1980 PLAN
```

Example 2

```
      PLOT
? COL NO.S OR JOBNAME ?: 1 THROUGH 6
? ROWIDS OR SELECTED ?: 2 3 4
? ENTER OPTIONS: D-DATA/ H-HISTO/ F-FLIP?: D  00
? ENTER DESCRP. COL NO. ?: 15
? TITLES: TOP,Y-AXIS,X-AXIS ?: SALES REPORT _ 1ST
? MORE TITLES ?: HALF 1979+PREPARED ON ?DATEL?,
? MORE TITLES ?: M I L L I O N S,
? MORE TITLES ?: M O N T H  =============>
? MORE TITLES ?:
? SET FORM
```

```
                     SALES REPORT - 1ST HALF 1979
                  PREPARED ON JUNE 16, 1979 - 2:47 PM

M     100:---------+---------+---------+---------+---------+
         :         :         :         :         :         :
I        :         :         :         :         :         :
         A         :         :         :         :         :
L        :         :         :         :         C         :
       75:---------+---------+---------+---------+---------+
L        :         :         :         :         :         :
         :         A         :         +         B         C
I        C         :         B         C         A         :
         :         C         :         A         :         :
O      50:---------+---------+---------+---------+---------B
         :         :         C         :         :         :
N        :         :         :         :         :         :
         :         B         :         :         :         :
S        B         :         :         :         :         A
       25:---------+---------+---------+---------+---------+
         :         :         :         :         :         :
         :         :         :         :         :         :
         :         :         :         :         :         :
         :         :         :         :         :         :
        0:---------+---------+---------+---------+---------+
          1         2         3         4         5        6

                                   M O N T H  ============>

                        1      2      3      4      5      6
         DATA         -----------------------------------------
         TYPE          JAN    FEB    MAR    APR    MAY    JUN
    ---------------   ------ ------ ------ ------ ------ ------
    1979 ACTUAL    (A)    85     64     60     54     60     28
    1979 FORECAST  (B)    28     34     60     60     64     50
    1979 BUDGET    (C)    60     55     44     60     80     65
```

PRINTER SETUP

This section tells you how to set up either the local or high-speed printer to produce hard-copy reports.

The primary destination for all reports is your terminal. For hard-copy terminals, the terminal itself normally functions as the local printer. For display terminals, a local 3280-series printer (or equivalent) serves as the local printer. Display terminals with a full-screen edit capability can command the local printer to produce a hard-copy image of the current screen contents, using the COPY subcommand, and can command the high-speed printer to produce a hard-copy printout of the complete data file using the OFFLINE subcommand.

Both hard-copy and display terminals can redirect the report output to a high-speed printing device, using the PRINTER, PRINTERON, and PRINTEROFF commands. The number of copies produced by the high-speed printer can be selected by using the EDIT command to change the COPIES system-defined variable. When the high-speed printer is used, no report output is displayed or printed at the user's terminal.

COMMAND HIGHLIGHTS

Command	Description
OFFLINE	Only available in display terminals with full-screen edit capability. Causes local printer to produce a copy of the report currently being displayed in the scroll mode (see the section "Using Data and Scroll Modes with Full-Screen Edit" on page 42 for details).
HOLDPAGE	Used only on hard-copy terminals. First execution of the command causes printing at the terminal to stop at the bottom of each page to permit paper adjustments. Second execution of HOLDPAGE releases the hold and allows printing to resume.
PRINTER	An interactive command used to turn the printer on and off. Allows the destination printer to be specified as a local printer, a systems high-speed printer, an RSCS job networking virtual machine, or a permanent storage disk file.
PRINTERON	A noninteractive command that turns on the printer currently selected by PRINTER command.
PRINTEROFF	A noninteractive command that turns off the printer currently selected by the PRINTER command.
COPY	Only available in display terminals with the full-screen edit capability. Execution of this command causes the local printer to print an image of what is currently being displayed on the screen.
COPIES	This is not a command but a system-defined variable that can be changed using the EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102). The current value controls the number of copies produced by the printer selected by the PRINTER command. You are notified when the high-speed printer in on, and are also informed of the number of copies produced.

If the high-speed printer selected by the PRINTER command is on, you are informed of the on status of the printer when you execute the LIST, REPORTS, or PLOT command. When report generation by the selected printer is completed, you are informed of the number of copies produced.

COPYING THE CURRENT SCREEN CONTENTS

You can produce a hard-copy printout of the current screen contents by typing **COPY** or by striking program function key 9 (PF9).

USING THE HOLDPAGE COMMAND WITH HARD-COPY TERMINALS

This command is used when a report is being produced on cut-form paper, requiring that a new form sheet be put in position for each page being printed. Proceed as follows:

1. Type **HOLDPAGE**, then type **LIST**, **REPORTS**, or **PLOT**, as appropriate to the type of report being produced.
2. At the end of the first page, printing stops, allowing you to insert the sheet for the next page. When the form sheet is in position,

type **HOLDPAGE** again. Printing is resumed. When the end of the second and succeeding pages of the report is reached, printing stops. Each time printing is stopped, insert the form sheet for the next page, and type **HOLDPAGE** again.

USING THE PRINTER, PRINTERON, AND PRINTEROFF COMMANDS

1. Type **PRINTER**. You are informed of the current status (on or off) of the high-speed printer.

2. You are informed of the current high-speed printer selection. Then, the prompt message appears:

   ?TO CHANGE SETTING, ENTER NEW ID OR S FOR SYSTEM PTR?:

   If you want to keep the current destination, make a blank entry. If you want to change the destination, type one of the following:

   a. S to specify the system printer.

   b. **RSCS linkid userid**, where rscs is the userid of the RSCS Job Networking Virtual Machine, linkid is the system (link) identification of the system or printer where the report output is to be sent, and userid (optional) is the user ID of the person on the remote end who is to receive the report output.

   c. **DISK** if you want to direct the report output to permanent disk file storage.

   d. **printerid**, where printerid is the destination ID of a system printer or a local 3280-series printer.

3. If you changed the destination in step 2, you are informed of the changed destination.

4. The reminder message BE SURE TO)SAVE appears. Execute)SAVE to save the printer on/off condition, and the printer destination.

5. To change the on/off status of the printer, execute PRINTER (changes the current on/off status to the opposite condition), PRINTERON (turns on the printer), or PRINTEROFF (turns off the printer).

6. To check the current number of copies that will be produced when the high-speed printer is on, type **COPIES**. The current setting is indicated. To change this setting, type **EDIT**, and respond to the ?WHAT? prompt by typing **COPIES**. Then, respond to the ?LINE NO. OR LIST? prompt by typing the numeral **1** (line **1**). Finally, respond to the ?LINE 1 I,D,C OR H? prompt by typing in the desired number of copies. Make a blank entry to the next ?LINE NO. OR LIST?: prompt to exit the EDIT command.

OPERATING IN EXPRESS MODE

This section tells you how to operate with ADRS II in the EXPRESS mode. Using EXPRESS mode allows you to string together the responses for individual commands, or to string together two or more commands and their associated response strings. By stringing together commands and their response strings, you eliminate the necessity of waiting for, and responding to, the various system messages that appear in response to each of your entries. You can totally or partially eliminate the system messages.

EXPRESS mode is intended for experienced users who no longer require prompting messages as aids in entering the information required to execute ADRS II commands. You can develop command and response strings off-line from the terminal, and then quickly enter them during a terminal session.

The EXPRESS mode of operation also permits you to execute customized routines consisting of command/response strings that are stored in tables created using the EDIT command.

Included in this section are examples of generalized response strings for a number of major operations that are performed frequently.

HIGHLIGHTS

- There are three basic ways of invoking EXPRESS mode:
  - After typing in the name of a command, you respond to any prompt message by typing in the responses for two or more consecutive prompting messages, separating each response with a semicolon.
  - Type **EXPRESS**, and respond to the ?ENTER?: prompt by typing in one or more commands and their response strings. Follow each command entry with the response string for the command. Each response is separated by a semicolon. The last response for one command is separated from the command entry for the next command by a colon.
  - Type **EXPRESS**, and respond to the ?ENTER?: prompt by typing in the name of a table containing a stored command/response string. The commands and responses in the table are executed. If a special prompt message appears during execution, you must respond with an appropriate entry.
- The noninteractive version of the EXPRESS command is EXP. If you type **EXP** instead of **EXPRESS**, you do not have to wait for the ?ENTER?: prompt. Instead, you enter a space, and then enter a command/response string or table name, enclosing the command/response string or table name in single quotation marks.
- Striking the ENTER or RETURN key after typing in a command/response string following **EXPRESS** or **EXP** causes a playout of the prompts and the entered responses to be produced. You can regulate the extent of the playout while EXPRESS is active by means of the HUSH, QUIET and TALK commands:
  - HUSH completely suppresses the playout;

- QUIET limits the length of the messages;

- TALK allows a complete playout to be produced.

MORE ABOUT THE EXPRESS MODE

- When you invoke EXPRESS mode it is not necessary to enter responses to all of the prompts for a command. If you do not enter all of the responses the system returns to normal conversational mode, and the prompt for the next entry appears. You can then continue in normal conversational mode, or you can invoke EXPRESS again by chaining together two or more responses separated by semicolons.

- Regardless of the method of invoking EXPRESS, you must separate each response with a semicolon. Represent blank entries by an extra semicolon. For example:

  Y;;7 represents three responses to three prompts, in which a blank entry was made to the second prompt.

- When chaining two or more commands together in one string after typing **EXPRESS** or **EXP**, the transition from the end of the response seting for one command to the start of the next command will always be in one of the following two forms:

  - If last response is blank entry:

    ;:NEXT COMMAND

  - If last response is not a blank entry:

    LAST RESPONSE:NEXT COMMAND

- You can execute HUSH, QUIET, or TALK before typing **EXPRESS** or **EXP**, and you can also enter these commands at any point in the command/response string to alternately turn the playout on and off.

  - HUSH completely suppresses the playout.

  - QUIET limits the length of system messages, as follows:

    1. Type **QUIET**

    2. The prompt ?NOW n....NEW SETTING appears, where n = the present limit on the number of characters in system messages. Make a blank entry if you want to retain the current setting. If you want to change the setting, type in the new limit (number of characters). The message NOW n appears, where n = the new setting.

  - TALK allows complete system messages to appear in the playout.

- The semicolon is the standard response separator, and the colon is the standard command separator. If either of these two characters appears within the responses being entered, the express mode separators must be changed. (See "Changing Data-Entry and EXPRESS Mode Separators" on page 247 Task 2 for details).

INVOKING EXPRESS MODE FOR A SINGLE COMMAND

This is the simplest method of entering EXPRESS mode. You can enter and exit the EXPRESS mode as many times as necessary while making entries for individual commands.

Proceed as follows:

1. Type the name of an ADRS II command.

2. When the prompt message where you want to invoke EXPRESS mode appears, type in the response to the prompt message, then a semicolon, then the response to the next prompt, then another semicolon, and so on. Enter as many or as few responses as you wish. Then, strike the **RETURN** or **ENTER** key. If you entered responses to all of the prompts for the command, proceed to step 1 and repeat the process for the next command. If you did not enter responses to all of the prompts, proceed to step 3.

3. The information message EXPRESS MODE (ACTIVE) appears, informing you that you have invoked and then exited express mode. Then, the prompt message for the prompt that follows the last response you entered in step 2 appears. You can respond to each prompt individually, or invoke express mode again by repeating step 2. After the response to the last prompt for the command has been entered, proceed to step 1 and repeat the process for the next command.

CREATING, STORING, AND USING TABLES OF COMMAND/RESPONSE STRINGS

Using the EDIT command (see "General-Purpose Editing, Using the Edit Command" on page 102) you can create tables of commands and responses. Then, by typing **EXPRESS**, you can respond to the ?ENTER?: prompt by typing the name of any such table stored in the application. This causes the stored command/response string in the table to execute as though you had typed in the commands and responses instead of the table name. When setting up the table using the EDIT command, each line of the table contains one of the following elements:

- A colon (:) followed by the name of a command to be executed (no semicolon follows the name of the command). A colon is _not_ required in front of the _first_ command in the table:

  :COMMAND

- A nonblank response to a single prompt for a command (no semicolon follows the response):

  RESPONSE TO A PROMPT

- A stand-alone semicolon representing a blank response to a prompt:

  ;

- An information message that is to be displayed or printed. The message to be printed or displayed is prefixed by m. to indicate a message:

  m.INFORMATION MESSAGE

- A prompting message (prefixed by m?) that suspends command execution until the operator responds to the prompt. The prompting message is printed or displayed.

The ability to imbed information and prompting messages within command/response strings in the table allows you to create an interactive message facility that used customized routines. This type of facility can be used in conjunction with the introductory message in an application (see "Creating Introduction to Application" on page 101 for details). The introductory message, or help message accessed from the introductory message, directs the user to enter the EXPRESS mode and respond to the ?ENTER?: prompt by typing in the name of a particular table. This table contains command/response strings for the routine referenced by the introductory message. At points in the command execution where operator options exist, prompting messages are generated that give the operator the available options, and request him to enter his selection.

RECORD DELETION FACILITY: AN EXAMPLE

This section describes an example, using the record deletion facility, of a stored-table routine with interactive prompts. The record deletion facility (DELREC) is created in a table stored in the application, using the EDIT command. After the table is created, record deletion can be invoked by typing **EXPRESS** and then responding to the ?ENTER?: prompt by typing **DELREC**.

The DELREC facility has the following features:

- A listing of rowids and their corresponding row numbers is produced for all records in the file. This allows the user to determine the rowids of the rows to be deleted.
- The user is given the option to enter his own selection statement for deleting records. This can be any valid selection statement that selects the records to be deleted. If he wants to simply delete a list of row numbers, the user is shown the format of the selection statement used for that purpose.
- Before erasure is actually performed, a list of the rowids to be deleted is produced for verification. The user is then given the option to proceed with, or abort, the record deletion.

The line entries in the DELREC table stored in the application would contain the following entries:

DELREC TABLE

```
 1:  TALK
 2:  :ROWIDS
 3:  M.HERE IS A LIST OF ROWIDS AND ROW NUMBERS (RNS) IN
     THE DATA FILE...
 4:  Y
 5:  ;
 6:  :HUSH
 7:  :SELECT
 8:  M.YOU MUST NOW ENTER A STATEMENT THAT SELECTS RECORDS TO DELETE.
 9:  M.TYPE THE NEXT STATEMENT
10:  M.IF 0 EQ K'ROWIDS OF ROWS TO BE ERASED'
11:  M.BE SURE TO TYPE THE K. QUOTES. AND A COMMA BETWEEN ROWIDS.
12:  M.YOU HAVE TO PROVIDE THE ROWIDS.
13:  M?TYPE IN YOUR SELECTION STATEMENT
14:  ;
15:  :ERASEROWS
16:  Y
```

EXPLANATION OF EXAMPLE

- TALK is invoked in line 1 to allow the list of rowids following line 4 to be produced during playout.

- ROWIDS is invoked in line 2. Response in line 4 causes a list of rowids/row numbers to be produced. Line 3 informs the user of what the list contains. Line 5 (blank entry) provides the exit from the ROWIDS command.
- HUSH is invoked in line 6 to suppress playout of system messages produced by the entries on lines 7 through 16.
- Lines 7 through 13 set up for the user's entry of a selection statement in response to the prompt on line 13. Line 14 (blank entry) provides the exit from the SELECT command.
- Lines 15 and 16 initiate the erasure. Following line 16, the system exits from EXPRESS mode and reverts to normal conversational mode. The response on line 16 causes a list of the rowids being deleted to be produced. To accomplish the erasure, the user must respond Yes to the last ERASEROWS prompt (ERASE n ROWS? Y/N:)

EXPRESS MODE RESPONSE STRINGS FOR MAJOR OPERATIONS

Remember that EXPRESS mode is intended for experienced users who do not need the system prompts to aid them in their work. To better understand any of the following EXPRESS mode strings, it is best to refer to the detailed explanation referenced for each command.

> **Note:** You must type 'EXPRESS' before entering any of these strings. At the ?ENTER? prompt, type in the command string. If you wish to save your work, use the command)SAVE after the last system message.

1. DATA FILE SETUP (it is assumed that only column 0 was set up the first time SETUP was executed in the application, and you are now proceeding to set up the other columns by executing SETUP again). See "Setting Up the Data File Using the SETUP Command" on page 34 for details.

   SETUP;N;Y;1;COL 1 SPEC;2;COL 2 SPEC;....;N;COL N SPEC;;

2. SETTING UP A NEW REPORT (NO COPYING OR FOLDED PATTERN) USING SETREPORTS (see sections "Storing Report Setups Using SETREPORTS" on page 110, "Selecting and Using Print Options in Regular Reports" on page 126, and "Setting Up Patterned Reports" on page 145 for details):

   > **Note:** You should list report options and print options in numerical sequence.

   > **SETREPORTS;REPORT NO.;REPORT NAME;COL. SPEC.S;N;Y;LIST OF REP. OPTIONS;OPT. RESP. STRINGS**

   > **Note:** Option response strings in the string above consist of all of the responses for all of the selected options, strung together in the numerical sequence of the options.

Report Option Response Strings for Selected Options:

Option NO.	Response String
1	**;N;COL HDR ROW NO.S IN FORMAL HDRS;LINE 1 TEXT; LINE 2 TEXT...LINE N TEXT;;**
2 or 3	**;LINE 1 TEXT;LINE 2 TEXT;....LINE N TEXT;;**

4	**LINE 1 TEXT;LINE 2 TEXT;.....LINE N TEXT;;**
5	**LIST OF PRINT OPTION NO.S;PRT OPT. RESP. STRINGS**

Note: Response strings for all selected print options are strung together in numerical sequence of the options following list of print option numbers.

Print Opt. No.	Response String
1	**C(PGM NO.),S(SORT STATEMENT);**
3	**MAJOR BRK. COL NO.;MINOR BRK COL. NO,;**
4	**COL. NO.S TO BE INCLUDED (I) OR EXCLUDED (E) IN TOTALS;**
5	**CONTROL BRK. PROGRAM NO.;**
7	**Y (IF MAJOR BRK. OVERFLOW) OR N(IF MAJOR/MINOR);**
9	**BORROWING STATEMENT;**
6	**N;N;PATTERN LINE 1;PATTERN LINE 2;...PATTERN LINE N;;**

3. DATA ENTRY USING INPUT COMMAND (see "Setting Up the Data File Using the SETUP Command" on page 34 for details)

```
INPUT;LIST OF COL. NO.S;ROWID,COL.ENTRIES;ROWID,COL,ENTRIES; LAST
ROWID;COL.ENTRIES;;
```

4. DELETING SELECTED RECORDS (see "Selectively Deleting Records from File" on page 83 for details)

```
SELECT;IF 0 EQ K'ROWID1,ROWID2,...LASTROWID';ERASE;N;Y
```

5. GENERATE LIST REPORT (see "Using LIST Command to Generate Simple Reports" on page 70) after selecting (see "Selection" on page 77), sorting (see "Sorting" on page 76) and calculating (see "Basic-Level Computations" on page 93)

```
SELECT;SELECTION STATEMENT;;:COMPUTE;PGM NO,:SORT STATEMENT:
LIST;COL. SPECS;TITLE;
```

6. CREATING A TABLE USING EDIT COMMAND (see "General-Purpose Editing, Using the Edit Command" on page 102)

```
EDIT;TABLENAME;NUM. OR CHAR. DATA (N OR C);LINE 1 DATA;...
LINE N DATA;;
```

7. GENERATING REPORTS USING REPORTS COMMAND (see "Generating Predefined Reports Using REPORTS Command" on page 167 for details)

```
REPORTS:REPORT NO.S OR NAMES;
```

   (Separate names with a comma.)

8. EXECUTING ANALYZE COMMAND (see "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240 for details)

```
ANALYZE;LIST OF FILENAMES;SELECTION STATEMENT;SELECTED COL. NO.S;
```

9. JOBNAME SETUP FOR INPUT COMMAND (see "Defining a Guided Data-Entry Job Using JOBNAME" on page 57 for details). (Setup is for job that lists rowids and uses a prompting column.)

```
JOBNAME;N;NAME OF JOB;2;LIST OF COL. NO.S;Y;LIST OF ROW NUMBERS OR
ROWIDS;Y;;
```

10. JOBNAME SETUP FOR FASTROW COMMAND (see "Data Entry Using FASTROW" on page 51 for details).

```
JOBNAME;N;NAME OF JOB;1;LIST OF COL. NO.S;;
```

11. JOBNAME SETUP FOR GRAPH OR BAR CHARTS (see "Setting Up and Generating Graphs and Bar Charts" on page 183 for details).

```
JOBNAME;N;NAME OF JOB;3;LIST OF COL. NO.S;LIST OF ROWIDS;OPTIONS &
Y-AXIS ORIGIN;COL. NO. CONTAINING ROW DESCRIPTORS;CHART TITLE,
Y-AXIS TITLE, X-AXIS TITLE;;
```

12. JOBNAME SETUP FOR SHIP COMMAND (see "Storing, Loading, and Deleting Shared Files" on page 205 for details).

```
JOBNAME;N;NAME OF JOB;4;LIST OF COL. NO.S;LIST OF ROWIDS;FILENAME;
MESSAGE;DESTINATION;;
```

13. INITIALIZING CONSOLIDATION SETUP USING SETCON (see "Storing, Loading, and Deleting Shared Files" on page 205 for details).

(Initialized with summary and details on and totals selected.)

```
SETCON;YES;T;LST FILENAME;...LAST FILENAME;;;;
```

14. ENTERING A NUMERIC BUSINESS FACTOR USING BUSFACTS COMMAND (see "Using the BUSFACTS Command to Create Business Factors" on page 106 for details).

```
BUSFACTS;NAME,N,VALUE;;;
```

15. ENTERING A NONNUMERIC BUSINESS FACTOR USING BUSFACTS COMMAND (see "Using the BUSFACTS Command to Create Business Factors" on page 106 for details).

```
BUSFACTS;NAME,VALUE;;;N;;
```

16. EXECUTING SHIP COMMAND WITHOUT A JOB SETUP (see "Storing, Loading, and Deleting Shared Files" on page 205 for details).

```
SHIP;LIST OF COL. NO.s;LIST OF ROWIDS OR SELECTED;FILENAME;MESSAGE;
DESTINATION
```

17. Executing PLOT COMMAND WITHOUT A JOB SETUP (see "Setting Up and Generating Graphs and Bar Charts" on page 183 for details).

```
PLOT;LIST OF COL. NO.S;LIST OR ROWIDS OR SELECTED;OPTIONS & Y-AXIS
ORIGIN;

COL. NO. CONTAINING ROW DESCRIPTORS;CHARTS TITLE,Y-AXIS TITLE,X-AXIS
TITLE
```

USING THE ASSIGN COMMAND FOR DATA ENTRY

The ASSIGN command allows the assignment of data to variables at execution time and allows user-written prompts for data entry.

The format of ASSIGN is:

```
ASSIGN 'VARNAME,PROMPT,DEFAULT,DATA TYPE'
```

For example:

ASSIGN 'ASOF, ENTER DATA,8-14-81,C'

Where:

ASOF	Is the variable name.
ENTER DATA	Is a prompt message written by the user.
8-14-81	Is the default value for the data.
C	Indicates the data will be character rather than numeric (N).

The ASSIGN command will usually be placed in a stored procedure. When the stored procedure is executed, the prompt message is displayed and an opportunity is given to accept the default value or to enter a new value for the data variable. For example, using a combination of EDIT, ASSIGN, and CALCULATE, you can easily enter data into any row/column position you choose in the ADRS II data base.

ADRS II has the capability of assigning a literal to a special variable type - a literal name; the literal name must start with the "Δ" character and can contain any combination of letters and numbers. Literals can be used very effectively with the ASSIGN command by specifying store files to be activated, data column to be indexed in a data structure for updating, report names or numbers to be selected, etc. The data which is entered in the "Δ" literal is actually substituted for the literal name when it is later used. For example, if the assignment is made: *ΔDEPT←'H08'*, then the select statement: *IF 7 EQ K'ΔDEPT'* in effect becomes *IF 7 EQ K'H08'*.

```
          EDIT
?WHAT?: DATANTRY
?NUMERIC OR CHARACTER DATA (N OR C)?: C
CREATING DATANTRY
?LINE 1?: :ASSIGN 'ΔROW,ENTER 5 CHAR ROWID,,C'
?LINE 2?: :ASSIGN 'ΔCOL,ENTER COLUMN,1,N'
?LINE 3?: :ASSIGN 'DENTRY,ENTER DATA,999,N'
?LINE 4?: :CALCULATE
?LINE 5?: IF 0 EQ K'ΔROW'
?LINE 6?: A V'DENTRY' =  ΔCOL IF
?LINE 7?: IF
?LINE 8?: ;
?LINE 9?:
?LINE NO OR LIST?:*
DATANTRY EDITING DONE*
```

Explanation of data entry table:

Line 1	The user chooses the rowid of the row in which he wishes to enter data.
Line 2	The column in which to enter data
Line 3	Assigns 'DENTRY' with the value of the data to be entered by user.
Line 4	Will actually perform the data entry by using calculate commands and the newly assigned variables.
Line 5	Selects the rowid chosen by the user.

Line 6	The data from DENTRY is placed in the column specified by the variable 'COL'. The appended 'IF' with nothing following it causes the calculation to be based on the previous selection statements.
Line 7	Selects all rows in the data structure.
Line 8	No more editing will be done.

Note: Lines 1-4 and 8 have colons in front because each is a separate command. Lines 5-7 do not have colons because they are part of the CALCULATE command.

To execute DATANTRY,

```
EXP DATANTRY
?ENTER 5 CHAR ROWID?: 0002A
?ENTER COLUMN (DEFAULT IS 1)?: 3
?ENTER DATA (DEFAULT IS 999)?: 2125
```

Examination of the data base shows that the number 2125 is now in row 2, column 3.

```
                DATA
  (0)            (1)          (2)          (3)
 ROWID          COL 1        COL 2        COL 3
 -----          -----        -----        -----
 0001A              0            0            0
 0002A              0            0         2125
 0003A              0            0            0
```

USING THE FILL COMMAND TO DETERMINE WORKSPACE AND DATA FILE SIZE

The FILL command allows you to determine:

- The number of workspace character positions that remain available in the application for further use (see step 2 below).
- The number of columns and rows currently contained in the data file (see step 2 below).
- The approximate number of records that can be added to the data file without exceeding the size of the workspace (see step 3 below).

TASK STEPS

1. Type **FILL.**
2. The following information messages are produced:

   AVAILABLE SPACE IS ppp POSITIONS (ppp = number of unused character positions remaining in application)

   APPROX 12K POSITIONS RESERVED DURING THIS OPER (indicates that approximately 12,000 of the character positions indicated in message above are reserved for execution of the FILL command).

yyy POSITIONS LEFT. c COLS. r ROWS, where:

yyy = ppp - 12K

c = No. of columns in data file
r = No. of rows (records in data file

YOU CAN ADD ROWS OR COLS (indicates that space is available for adding rows or columns to the data file).

3. To find the maximum number (approximate) of records that can be added to the data file without overflowing the workspace size, proceed as follows:

   a. Respond to the prompt message ?ROWS OR COLUMNS R/C?: by typing **R**.

   b. Respond to the prompt message ?NUMBER OF ROWS TO ADD?: by typing **100**

   c. The information message rrr POSITIONS LEFT. c COLS. r ROWS is produced.

   d. Subtract rrr in step 5 from yyy in step 2 to determine the number of characters required for 100 records.

   e. Divide the value obtained in step d into the value yyy in step 2.

   f. Multiply the value obtained in step e by 100 to obtain the approximate maximum number of records that can be added to the data file.

4. Strike the ENTER or RETURN key until the FILL command is exited. DO NOT execute)SAVE.

5. To eliminate the 100 blank records added in step 3, reload the application (see "Loading an Application into the Active Workspace" on page 31).

USING FREE COMMAND TO OBTAIN A LIST OF STORED ADRS II COMMAND PROGRAMS

ADRS II command programs are stored in an application by executing the FIX command. To obtain a listing of the programs stored in the application, you execute the FREE command.

TASK STEPS

1. Type **FREE**. The information message FIXED COMMANDS ARE appears, followed by a listing of the ADRS II commands whose programs are stored in the application.

2. In response to the ?ENTER NO. OF CMD TO FREE?:, strike the ENTER or RETURN key to indicate a blank entry.

FIXING AND FREEING ADRS II COMMAND PROGRAMS IN APPLICATION

This work package tells you how to use the FIX command to store frequently used programs for ADRS II commands within the application. If the command program is stored in the application, it can be modified. Also, storage in the application eliminates the need to fetch the program from the central library each time the command is executed.

The FREE command is used to delete a previously stored command program from the application.

TASK STEPS

1. Type **FIX**. An information message appears indicating the number of remaining storage positions that are available within the application. The message also provides a numbered listing of the ADRS II commands whose programs are available for storage in the application.

2. Select the commands you want to store, and obtain their associated numbers from the information message described in step 1. Repeat steps 1 and 3 for each command to be stored.

3. The prompt ?ENTER NO. OF CMD TO FIX?: appears. Respond by typing in one of the numbers selected in step 2. An information message appears indicating the number of storage positions now available in the workspace, and the number of positions that were used to store the selected command program. Execute)SAVE in response to the BE SURE TO)SAVE message.

4. To delete any of the commands stored in step 3 above, type **FREE**. The information message FIXED COMMANDS ARE (followed by a numbered listing of the fixed commands) appears.

5. Select the commands you want to free from the list produced in step 1, and obtain their associated number from the listing in step 1. Repeat steps 4 and 6 for each command to be deleted.

6. The prompt ?ENTER NO, OF CMD TO FREE?: appears. Respond by typing in one of the numbers selected in step 5. The information message ....FREED appears, indicating the command that was deleted. Execute)SAVE in response to the BE SURE TO)SAVE message.

   Notes:

   a. You can temporarily store command programs used frequently during the initial setup of an application. Then you can delete them from storage before commencing to create the data base.

   b. In general, you should not attempt to permanently store any command programs in the application until after data file setups, report setups, tables of variables, stored programs, etc. have been entered. Then, perform the procedure in step 3, Task 8 of section "Using the FILL Command to Determine Workspace and Data File Size" on page 202 to use the FILL command to create rowids equal to the maximum number of records you expect in the data file. At completion of this step, you will be informed of the number of storage positions remaining in the application. Subtract 30,000 from this number to obtain the approximate number of storage positions that are available for storing command programs.

   c. Once a command program has been stored in the application, modifications and enhancements can be made to the program to customize it for your particular needs.

STORING, LOADING, AND DELETING SHARED FILES

This section tells you how to store, activate (load) and delete data files in shared files storage within your private library.

Shared files are used for the following purposes:

- To split up large files into subfiles when the whole file is too large to fit in the active workspace.
- To permit multifile data inquiry using the ANALYZE command (see the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240).
- To permit a file created for one application to be used with another application.
- To create related files used in report generation (see the sections "Using Variable Data in Text" on page 135 and "Setting Up Patterned Reports" on page 145), and to create reference files from which selected columns can be extracted and merged into an application data base (see the section "Extracting and Merging Data from Reference Files" on page 242).
- As temporary storage for files being consolidated (see the section "Consolidating Shared Files" on page 210).

HIGHLIGHTS

- STORE command lets you transfer a copy of an entire file from the active workspace to shared files storage.
- ACTIVATE command lets you transfer a copy of an entire file from shared files storage to the active workspace.
- SHIP lets you transfer selected columns and rows from the active workspace to shared files storage. The name of the shipped file, and the selected columns and rows, can be stored under a job setup created with the JOBNAME command.
- SETCON and CONSOL commands let you transfer selected columns and rows from shared files storage to the active workspace (see the section "Consolidating Shared Files" on page 210 for details).
- PURGEFILE command deletes an entire file from your private library.
- Each shared file contains the data file setup (not including headers) the data file records, and (optionally) a selected set of user- and system-defined variables whose names are contained in a STORELIST created with the EDIT command. The STORELIST is used only with the STORE command.
- See the section "Storing and Activating Applications in Shared File Storage" on page 206 for storage of an entire application in shared files storage.

- Shared files can also be stored using the LOADFILE command (see the section "Extracting Data from External Files Using LOADFILE" on page 225 for details).
- The ANALYZE command lets you perform inquiries (selections) on one or more shared files (see the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240 for details).

GENERAL GUIDELINES FOR USING SHARED FILES.

- Observe the requirements for naming each shared file:
  - Names may not be duplicated.
  - No more than 8 characters in a name.
  - No spaces in the name.
  - First character cannot be a number.
- The data file to be stored in shared files must always be created first in the active workspace after first defining the data file setup (see the section "Setting Up the Data File Using the SETUP Command" on page 34).
- To activate a shared file into the active workspace, the data file setup stored with the file in shared files must be the same as file setup for the application in the active workspace.
- The SHIP command can be used to store selected rows and columns within your own private library, and can also be used to ship selected data to another user. JOBNAME allows you to store a setup that defines what is shipped.
- The CONSOL command allows you to consolidate data from two or more shared files in your private library, and can also be used to bring into your active workspace a file that was shipped by another user, using the SHIP command. SETCON is used to store a setup that defines what is brought into the active workspace when CONSOL is executed. See the section "Consolidating Shared Files" on page 210 for details).

STORING AND ACTIVATING APPLICATIONS IN SHARED FILE STORAGE

Applications can be stored in shared file storage as well as in application workspace storage within your private library. Storage of applications in shared files achieves a substantial reduction in the required permanent storage space within your private library.

Briefly, STORE writes only application data columns and rows onto permanent disk storage as an ADRS II data file with a name of your choosing. ACTIVATE performs the reverse function of STORE by reloading the data from a stored data file back into your application workspace. The STORE and ACTIVATE facility is useful for multi- workspace applications where the data in each workspace is structurally identical to that in the other workspaces (that is, has the same number of columns and column definitions in each workspace).

For example, suppose a budgeting application contains 15 ADRS II workspaces, each containing data for a single department. Each workspace contains the same data structure; same number and type of columns defined. Also, all the workspaces have the same report definitions, calculation logic, etc. In short, the only unique element among these department workspaces is the data content which is different for each of the departments. As you see, STORE/ACTIVATE enables the user to establish a single application workspace which would contain a skeletal data structure and all the common elements, such as report definitons.

The ALL option of STORE/ACTIVATE extends the processing of these commands to include the storing and retrieving of all elements of your application workspace. That is, column headers, report definitions, calculation programs, the columnar data, and user-written APL functions that are listed in the store list table are written to the data file.

The ALL option can be invoked in two ways:

- To set the ALL option on permanently, edit the keyword ALL into the store list data variable using the edit command.
- To invoke the ALL* option during the execution of the STORE command, simply append ALL to the data file name when prompted.

TASK STEPS

1. STORING THE APPLICATION

   a. Assure that the data file (if any) for the application is in the active workspace.

   b. Type **STORE**. The prompt message ?ENTER STORE FILENAME (LESS THAN 8 CHAR.S)?: appears. Respond to this prompt by typing the name under which the application is to be stored in shared files. Following the last character of the name, enter a comma, followed by the word **ALL**:

      FILENAME,ALL

   c. The information message STORE COMPLETE.(filename) CREATED: (date and time) appears.

   d. If appropriate, you can now drop the application from application workspace storage (see "Dropping an Application from Your Private Library" on page 33).

2. TO ACTIVATE THE APPLICATION BACK INTO THE ACTIVE WORKSPACE

   a. Type **)LOAD N ADRS2**, where n = the number of the public library containing the fresh copy of ADRS II. An information message appears indicating the last time the fresh copy of ADRS II was updated.

   b. Type **ACTIVATE**. The prompt message ?ENTER FILENAME TO ACTIVATE?: appears. Respond by typing in the name under which the application was stored in shared files.

   c. The information message NOTE....THIS DATA FILE WAS STORED WITH THE ... ALL.. OPTION appears.

   d. The prompt message ?VERIFY INTENT. ENTER YES TO CONTINUE?: appears. Type **YES** if you want to load the application into the active workspace.

   e. The information message ACTIVATE COMPLETE appears. Then, the message DONE. ALL n RECORDS SELECTED appears.

f. The reminder message BE SURE TO)SAVE appears. If you want to save the activated application in application workspace storage, execute)WSID to assign a name to the workspace (see "Changing the Name of an Application" on page 32 for details). Then, execute)SAVE (see "Saving an Application" on page 29 for details).

g. When all work on the application is completed, you can again store the application in shared files, as described in 1 above.

STEP NO.		
1		Prepare the data file in the active workspace for storage. If variables are also to be stored, see procedure "Creating a Store List for Use with the Store Command" for preparing the STORELIST. Proceed to step 2.
2	Type **STORE**	Proceed to step 3.
3	PROMPT MESSAGE:	?ENTER STORE FILENAME (LESS THAN 8 CHAR.S)?:
	YOUR RESPONSE:	Type in the name under which the file is to be stored. Proceed to step 4.
4	INFORMATION MESSAGE:	STORE COMPLETE
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE if a new file is being named for the first time.

Figure 60. Using the STORE Command. (Stores entire file into shared files

---

STEP NO.		
1	Type **ACTIVATE.**	Proceed to step 2.
2	PROMPT MESSAGE:	?ENTER FILENAME TO ACTIVATE?:
	YOUR RESPONSE:	Type the name of the file to be loaded into the active workspace. Proceed to step 3.
3	INFORMATION MESSAGE:	ACTIVATE COMPLETE
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE if you want to save the newly loaded file in the application.

Figure 61. Using the ACTIVATE Command. (Loads shared file into Active Workspace.)

CREATING A STORELIST FOR USE WITH STORE COMMAND

Selected user-defined variables, created with the EDIT and BUSFACTS commands (see the sections "General-Purpose Editing, Using the Edit Command" on page 102 and "Using the BUSFACTS Command to Create Business Factors" on page 106), and by other methods, can be stored in shared files along with the data file by creating a STORELIST.

1. To obtain a listing of user-defined variables created with the EDIT command, type **EDITNAMES**. The list of user-defined variable names (and any system-defined variable names that have been edited) is produced.

2. To obtain a list of user-defined variables created with the BUSFACTS command, type **BUSFACTS**. Respond to the ?n BUSFACTS EXIST, LIST?: prompt by typing **LIST** or **L**. The list is produced. Make blank entries to the remaining prompts to exist from the BUSFACTS command.

3. Make a list of those variable names on the lists obtained in steps 1 and 2 that you want to store in shared files along with the data file.

4. Type **EDIT**. Respond to the ?WHAT? prompt by typing **STORELIST**.

5. Follow the procedure in the section "General-Purpose Editing, Using the Edit Command" on page 102 to create the STORELIST table. On each line of the table, enter one of the variable names that you listed in step 3.

6. Each time STORE is executed, all of the tables of variables, and all of the business factors, whose names are stored in the STORELIST table will be stored in shared files along with the data file. When ACTIVATE is executed, these tables of variables, and the business factors, are restored in the active workspace.

USING THE KEEP COMMAND

The sole purpose of executing KEEP is to reduce the amount of permanent storage required for storing an application that is saved after all work on the application has been completed. The amount of reduction in storage is approximately 46k bytes, which is accomplished by erasing from the active workspace (prior to executing)SAVE) certain system functions that can be restored to the active workspace whenever the application is loaded back into the active workspace by means of the)LOAD command.

You cannot use KEEP to reduce the storage space while work is in progress on an application that is in the active workspace. That is, KEEP can only be executed before executing)SAVE for the last time, after all work that changes the application has been completed, and the next action is to either sign off or load another application.

On APL and hard-copy terminals, enter KEEP in response to "BE SURE TO SAVE" before executing)SAVE.

On non-APL display terminals, KEEP must be executed before executing DONE, that is, while the terminal is still in the ADRS II conversational mode. After executing KEEP, execute DONE, and then execute)SAVE. To execute another ADRS II command, next execute GO.

After you execute KEEP, you will be prompted to execute)SAVE.

Note: On loading a "kept" workspace, you will be prompted to:)COPY n ADRS2 UPDATES. This step is required in order to restore the basic functions required to use and maintain your application workspace.

CONSOLIDATING SHARED FILES

This section tells you how two or more shared files in a user's private library can be consolidated, using the SUMMARY, RESTORE, SHIP, READER, SETCON, and CONSOL commands.

The result of consolidation is a single consolidated file in the user's active workspace containing summary data only, or both summary and details. The details consist of all of the detail rows contained in all of the shared files that are being consolidated. Each detail row in each file contains (in its numeric columns) the detailed data for one of the categories of detail that are to be summarized. For each category of detail, a summary row is created that contains (in its numeric columns) totals or variance values obtained using either of the following two equations, which are applied to each numeric column in the file:

Category Total = F1 + F2.....+Fn + Ct

OR

Category Variance = F1 - (F2 + F3.....+Fn) + Ct

Where:

Ct	Any existing column value contained in the summary row of the consolidated file prior to the current consolidation. The existing values can be reset to zero using the SETCON command.
Category Total	The sum of the column values in the detail rows for that category among all of the files being consolidated, plus an accumulated total already contained in the summary row.
Category Variance	The remainder (plus any accumulated variance value already contained in the summary row) after the column values for the detail rows for that category in the second through last files are subtracted from the column value of the detail row for the category in the first file being consolidated.
F1	The column value in the detail row (for the category being summarized) of the first shared file specified in the list of files to be included in the consolidation.
F2	The column value in the detail row for the category being summarized) of the second shared file specified in the list of files to be consolidated.
F3	The column value in the detail row (for the category being summarized) of the third shared file specified in the list of files to be consolidated.
Fn	The column value in the detail row (for the category being summarized) of the nth (last) shared file specified in the list of files to be consolidated.

Note: When variances are being computed in the consolidated file, the first shared file typically contains previously consolidated budget or forecast totals for each category of detail, and the second through last shared files typically contain actual values that are first totaled. The total is then subtracted from the budget or forecast values in the first file to determine the magnitude of the variance between the consolidated actual totals and the previously consolidated budget of forecast totals.

TASK STEPS

1. If required, execute SUMMARY command to create separate detail categories for each segment of compound rowids.
2. Execute-SHIP and READER commands, as required, to load all files being consolidated into consolidator's private library.
3. Execute SETCON command to set up the consolidation, then execute CONSOL to perform the consolidation.

MORE ABOUT CONSOLIDATION

Prerequisites for Consolidation

- All shared files being consolidated must be resident in the consolidator's private library.
- All shared files being consolidated must have the same data file setup.
- The name under which each shared file is stored must uniquely identify the file in the first five characters of the name.
- Each detail row (record) in each shared file must contain a category of detail that is to be summarized in the consolidated file.
- For each category of detail being summarized in the consolidated file, the same rowid must be assigned to the corresponding detail row within each file. That is, all detail rows in all files for a particular category of detail must use the same rowid.
- The rowids detail rows in the shared files must be no longer than 7 characters, and must contain only numbers and lowercase letters.

Column 0 (Note 1) (rowid)	Numeric Columns	Alphameric Columns
(Summary Prefix) (rowid of category 1)	computed summary values in each column for category 1	Blank
│		
(Summary Prefix) (rowid of category n)	Computed summary values in each column for category n	Blank
(file 1 filename) (rowid of category 1)	Detail values in each column for category 1 of file 1.	Alphameric data
│		
(file 1 filename) (rowid of category n)	Detail values in each column for category n of file 1.	Alphameric data
│		
(file i filename) (rowid of category 1)	Detail values in each column for category 1 of file i.	Alphameric data
│		
(file i filename) (rowid of category n)	Detail values in each column for category n of file i.	Alphameric data

Figure 62. Format of the Consolidated File

Notes on Format

1. Column 0 is expanded to incorporate summary and file name prefixes. Summary prefixes (TOTAL for totals, or VAR for variance) are appended to the category rowids for the summary rows of the consolidated file. The file name prefixes (first five characters of the shared file name) are appended to the category rowids for the detail rows in each file.
2. The rows having a file name prefix (the detail rows) appear in the consolidated file only if the summary and details consolidation option is selected.
3. For each category of detail, the same rowid appears in the summary row, and in the corresponding detail row of each file.
4. Categories 1 through n are the first through last detail categories being summarized.
5. Files 1 through i are the first through last shared files being consolidated.

DEFINITIONS

Term	Definition
Remote	A user whose active workspace contains one of the files to be consolidated. The user must prepare the file for consolidation and "ship" it to the consolidator's private library.

Home	The consolidator's private library and active workspace.
Summary Data	Total or variance data computed across all files being consolidated. A separate summary data row containing totals or variance is created for each category of detail.
Detail Data	The individual data rows in each file being consolidated. Each such data row has a rowid that identifies the category of detail contained in the row.
Compound Rowid	A multisegment rowid in a data file not yet prepared for consolidation. Each discrete code in each segment of the rowid defines a category of detail to be included or summarized in the consolidated file.
Shipping	The process by which a data file in the remote workspace is transferred to the shared files section of the home private library.

COMMAND DESCRIPTION

Command	Description
SUMMARY	Command is executed in remote workspace prior to shipping the file. The command is used only when the data file to be shipped contains compound rowids, and it is desired to obtain totals for each discrete code value found in the file for each segment of the rowid. For each such discrete code value, column totals are obtained (numeric columns only) by summing the row values of all rows containing that code. The column totals are placed in a new row of the file, whose expanded column 0 rowid consists of a TOTAL prefix, followed by the code.
SHIP	Allows the remote user to ship selected rows and columns of a data file to the home user. A message can be prefixed to the shipped file data. See the section "Storing, Loading, and Deleting Shared Files" on page 205 for more details.
READER	In VM/CMS systems, this command is executed to load a shipped data file into the shared files section of the home user's private library.
SETCON	Sets up the consolidation by specifying the names of the files to be consolidated, the type of consolidation (summary only or summary and details), and the type of summary data (totals or variance).
CONSOL	Executes the consolidation set up by SETCON, creating the consolidated file in the home workspace.
RESTORE	When the SUMMARY command was executed in the data file in the remote workspace, the RESTORE command is executed after the summarized file is shipped to restore the file to its original condition (before SUMMARY was executed).

PROCEDURE FOR CONSOLIDATION

1. At each remote, perform the following steps:

   a. If required, activate the file to be shipped for consolidation, using the ACTIVATE command (see the section "Storing, Loading, and Deleting Shared Files" on page 205).

   b. If you want to create and ship separate summary data for each code value in each segment of the rowid in column 0, execute the USING THE SUMMARY COMMAND procedure in this section. Proceed to step d if SUMMARY was not executed. Proceed to step c if SUMMARY was executed.

   c. If SUMMARY was executed, type **SELECT**, and enter the following selection statement in response to the first prompt.

      ```
      ?SELECTION STATEMENT?:    IF 0(1) EQ K't'
      ```

      Make a blank entry to the next prompt. Then, execute the SHIP command (see the section "Storing, Loading, and Deleting Shared Files" on page 205 and specify the column numbers. When the ?ROWIDS OR SELECTED OR ALL?: prompt appears, type **SELECTED**. After SHIP is executed, perform the USING THE RESTORE command procedure in this section to restore the data file to its original (unsummarized) condition. Do not perform step d.

   d. Execute SHIP command to select the rows and columns to be shipped.

2. Perform the following procedure in the home (consolidator's) workspace after all remotes have shipped their files:

   a. If required in VM/CMS systems, type **READER** to load the shipped data files from your VM reader into your private library. As each file is loaded, the file name is printed or displayed.

   b. If required, activate the existing consolidated file into the active workspace, using the ACTIVATE command (see the section "Storing, Loading, and Deleting Shared Files" on page 205).

   c. Perform the procedure for using the SETCON command (Figure 65 on page 218 to set up the consolidation. Use the SETCON options as follows:

      - Select option 3 to clear the summary rows to zeros (no accumulated totals), and to erase any detail rows.

      - If you want to accumulate totals, and also want to include the detail rows in the consolidated file, proceed as follows:

        - If summary details switch is currently set to "summary only", select option 1 to change the switch to "summary and details".

        - If summary details switch is currently set to "summary and details", select option 1 to select "summary only". Then, select option 1 a second time to change back to "summary and details". This action erases the detail rows while retaining the accumulated totals in the summary rows.

  - Select option 2 if you want to change the list of files being consolidated.

  - Select option 4 if you want to change from totals to variance or vice versa.

d. Perform the procedure for using the CONSOL command (Figure 66 or page 221) to accomplish the consolidation. The consolidated file is now updated with the data from the shipped data files.

e. If desired, you can make two or more consolidation passes with different consolidation setups. After completing each pass, produce the associated reports, and/or store the consolidated file using the STORE command (see the section "Storing, Loading, and Deleting Shared Files" on page 205). Then, perform steps b, c, and d again for the next pass changing the consolidation setup as desired for each pass.

f. After all consolidation work is completed, you can delete the shipped files from your private library by executing the PURGEFILE command (see the section "Storing, Loading, and Deleting Shared Files" on page 205).

g. If the consolidated file(s) produced in steps a through f are to be shipped to another consolidator at a higher-level of consolidation, your workspace becomes a remote for the next higher level. Perform the procedure in Figure 63 on page 216 to ship the consolidated file to a higher level for the next consolidation.

STEP NO.		
1		If required, select the rows (records) of the data file to be included in the summary, using the SELECT command (see the section "Selection" in this chapter). Proceed to step 2.
2	Type **SUMMARY**.	Proceed to step 3.
3	PROMPT MESSAGE:	?A SET OF POS.S?:
	YOUR RESPONSE:	Type in the character positions of the rowid in column 0 that define the first segment for which totals are desired. Separate each character position entered with a space. Proceed to step 4.
4	PROMPT MESSAGE:	?ANOTHER SET OF POS.S?:
	YOUR RESPONSE:	Make a blank entry if there are no more segments to be defined. If there is another segment for which you want totals, type in the character positions in column 0 that correspond to the segment. Proceed to step 5.
5	INFORMATION MESSAGE:	DONE. ALL n RECORDS SELECTED (n = total No. of records that are currently selected)
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE. Proceed to step 6.
6		Execute LIST command (see the section "Using the LIST Command to Generate Simple Reports" in Chapter 4). Specify column 0 and the numeric columns of the file where totals are produced. Examine the report that is generated, and verify that a TOTAL row is included for each discrete code value contained in each rowid segment specified in steps 3 and 4. Also, verify that each TOTAL row contains (in each numeric column) the totals for all rows that contain the code value indicated in column 0 of the TOTAL row.

Figure 63. Using the SUMMARY Command. If required, perform this procedure in the remote workspaces before shipping data files from the remotes.

STEP NO.		
1	Type **RESTORE.**	Proceed to step 2.
2	INFORMATION MESSAGE:	COL ZERO NOW (next line(s) show column header for column 0)
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE.

Figure 64. Using the RESTORE Command. Perform this procedure in the remote workspace after you ship a file that was summarized using the SUMMARY command.

STEP NO.		
1	Type **SETCON**.	If no SETCON setup exists, proceed to step 2. If a setup already exists, proceed to step 6.
2	PROMPT MESSAGE:	?ENTER YES FOR SUMMARY AND DETAIL, CR SUM ONLY?:
	YOUR RESPONSE:	Type **YES** if you want to bring all rows into the file. If you want only the summary rows in the file, make a blank entry. Proceed to step 3.
3	PROMPT MESSAGE:	?V FOR VARIANCE OR T FOR TOTALS?:
	YOUR RESPONSE:	If you want to total the data from all files being consolidated, type **T**. If you want to subtract the sum of the totals received from the second and succeeding files from the totals received from the first file, type **V**. Proceed to step 4.
4	INFORMATION MESSAGE:	CREATING FILE LIST (indicates that you will next be requested to name each of the files that are to be consolidated)
	PROMPT MESSAGE:	?IDn?: (n = the sequential number of the file, starting with 1)
	YOUR RESPONSE:	Respond to each prompt by entering the name of one of the files being consolidated. The name must be the same as the name under which the file was stored in Shared Files, using the STORE or SHIP command. Make a blank entry to the prompt that occurs after the last file name has been entered. Proceed to step 5.
5	PROMPT MESSAGE:	?ID NO. OR LIST?:
	YOUR RESPONSE:	Type **LIST** or **L** to obtain a list of the file names stored in the file list. If you want to enter another file name, go back to step 4. Make a blank entry if you do not want to add file names, and do not want a list, then go to step 7.

Figure 65 (Part 1 of 3). Using the SETCON Command. (Stores the setup for the CONSOL command.)

6 INFORMATION MESSAGE: CONSOLIDATION STATUS (the next lines indicate the settings that were previously made in steps 2 and 3 above, the number of files previously specified in step 4. Also, the number of summary and detail lines in the files specified in step 4 are separately indicated.)

7 PROMPT MESSAGE: ?ENTER LIST FOR OPTIONS?:

YOUR RESPONSE: If you want a list of available options, type **LIST** or **L**. The options list in the information message below is printed or displayed. If you don't want a list, make a blank entry. Proceed to step 8.

INFORMATION MESSAGE:

OPT.	PURPOSE
1	CHANGE SUMMARY/DETAIL SWITCH
2	EDIT FILE IDS
3	RESET SUMMARY ROWS TO ZEROS, ERASE ANY DETAILS
4	CHANGE TOTAL/VARIANCE SWITCH

8 PROMPT MESSAGE: ?ENTER OPT NUMB OR C R?: (appears for new setup)

OR

?ENTER OPT NO. OR LIST?: (appears for existing setup)

9 YOUR RESPONSE: Make a blank entry if you don't want to enter any option numbers. Proceed to step 12.

To obtain a list of the options in response to the second prompt message above, type **LIST** or **L**. The information message in step 7 is produced. Go back to step 8.

If you want to make a change to the existing setup, type one option number. If you typed option 1, 3, or 4, an information message appears informing you of the changed settings. Go back to step 8. If you typed option 2, you can insert, delete, or change file names in the files list. In this case, proceed to step 10.

Figure 65 (Part 2 of 3). Using the SETCON Command. (Stores the setup for the CONSOL command.)

10	PROMPT MESSAGE:	?LINE NO. OR LIST?:
	YOUR RESPONSE:	If you want a listing of the contents of the file list, type **LIST** or **L** repeated. If you don't want a list and don't want to make any changes, make a blank entry and go back to step 8. If you want to insert, delete, or change a line, type the line number to be changed or deleted, or the line number above the line to be inserted. Proceed to step 11.
11	PROMPT MESSAGE:	?LINE n I, D, C, OR H?: (n = line number entered in step 10)
	YOUR RESPONSE:	To change an existing line, type in the change, and go back to step 10. To delete a file name type **D**. An information message appears confirming that the line is deleted. Go back to step 10. To insert a file name below the line entered in step 10, type **I**. The ?LINE n?: prompt appears, where n = the number of the line to be inserted. Enter the file name to be inserted, and go back to step 10.
12	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE to save the setup.

Figure 65 (Part 3 of 3). Using the SETCON Command. (Stores the setup for the CONSOL command)

STEP NO.		
1	Type **CONSOL**	Proceed to step 2.
2	PROMPT MESSAGE:	?ENTER Y TO DISPLAY MESSAGES?:
	YOUR RESPONSE:	Make a blank entry if you don't want to see the messages (if any) that were shipped with the file. Proceed to step 3. If you want to see the messages that were sent under the SHIP command, type **Y**. Any messages are printed or displayed (separate message status is indicated for each file specified under the SETCON command). After the last message appears, the information message END OF MSG.S appears. Proceed to step 3.
3	PROMPT MESSAGE:	?ENTER Y TO CONSOL?:
	YOUR RESPONSE:	If you don't want to execute the consolidation, make a blank entry and proceed to step 4. If you want to execute the consolidation and bring the consolidated data into the active workspace, type **Y**. Information messages are produced informing you when consolidation on each of the selected files has been completed. After all consolidation is completed, the information message DONE. All n RECORDS SELECTED appears, where n = the total number of records brought into the workspace. Proceed to step 4.
4	REMINDER MESSAGES:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE (if the consolidation was executed) in order save the consolidated data.

Figure 66. Using the CONSOL Command. (Consolidates and brings into the active workspace the data and files specified under the SETCON command.)

STEP NO.		
1	Type **JOBNAME**	Proceed to step 2.
2	PROMPT MESSAGE:	?LIST n EXISTING JNS?:
	YOUR RESPONSE:	Blank entry. Proceed to step 3.
3	PROMPT MESSAGE:	?JOBNAME?:
	YOUR RESPONSE:	Type in the name of the new job being set up for the SHIP command, and proceed to step 4, OR, To delete an existing jobname, type the existing job name, a message is produced indicating that the deletion was accomplished, and proceed to step 7.
4	PROMPT MESSAGE:	?1-FASTROW/2-INPUT/3-PLOT/4-SHIP; ONE NUMBER?:
	YOUR RESPONSE:	Type 4. Proceed to step 5.
5	PROMPT MESSAGE:	?COL NO.S OR ALL?
	YOUR RESPONSE:	Same as step 2 in Figure 69 on page 224
6		Respond to the prompts in steps 3 through 6 in Figure 69. After step 6 in Figure 69 completed, proceed to step 7 below.
7	PROMPT MESSAGE:	?JOBNAME?
	YOUR RESPONSE:	If you want to enter or delete another job setup, go back to step 3. If there are no more job setups to enter, make a blank entry, and proceed to step 8.
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Execute)SAVE to save the job setup.

Figure 67. Creating a Job Setup for SHIP Using the JOBNAME Command. (Lets you store in the application the setup used for the SHIP command.)

STEP NO.		
1	Type **PURGEFILE.**	Proceed to step 2.
2	PROMPT MESSAGE:	?ENTER FILENAME TO DELETE?:
	YOUR RESPONSE:	Type in the name of the file being deleted.
3	PROMPT MESSAGE:	
	YOUR RESPONSE:	Type **YES** to delete the file.

Figure 68. Using the PURGEFILE Command. (Deletes a shared file from your private library.)

STEP NO.		
1	Type **SHIP**	Proceed to step 2.
2	PROMPT MESSAGE:	?COL.S OR JOBNAME OR ALL?:
	YOUR RESPONSE:	Type the name of a SHIP job setup, and proceed to step 7, OR, Type **ALL** if you want all column numbers, or enter the column numbers to be shippped. Use a space as separator between column numbers, or use **T** to separate the first and last column numbers of a sequential set. Proceed to step 3.
3	PROMPT MESSAGE:	?ROWIDS OR SELECTED OR ALL?:
	YOUR RESPONSE:	Enter **SELECTED** if you want to ship all currently selected records, and proceed to step 4, OR, Enter **ALL** if you want to ship all records in the file, and proceed to step 4, OR, Enter a list of the rowids you want to ship. Use a space as separator between rowids, or use **T** to separate the first and last rowids of a sequential set. Proceed to step 4.
4	PROMPT MESSAGE:	?ENTER SHIP FILENAME (LTE 8 CHAR.S)?
	YOUR RESPONSE:	Enter the name under which the shipped file is to be stored. (No more than 8 characters allowed in name.) Proceed to step 5.
5	PROMPT MESSAGE:	?ENTER MESSAGE?:
	YOUR RESPONSE:	Blank entry if no message. If you want to send a message with the file, enter the message. Proceed to step 6.

Figure 69 (Part 1 of 2). Using the SHIP Command. (Stores selected elements of a file into shared files.)

STEP NO.		
6	PROMPT MESSAGE:	?USERID OF CONSOLIDATOR OR SELF?:
	YOUR RESPONSE:	If you are storing the file in your private library, enter **SELF**. If you are shipping the file to another user, enter the userid of the user that is to receive the file. Proceed to step 7.
7	INFORMATION MESSAGE:	SHIP COMPLETE
	REMINDER MESSAGE:	BE SURE TO)SAVE
	YOUR RESPONSE:	Normally, you do not have to execute)SAVE, since SHIP produces no change in the application. Execute)SAVE if the name entered in step 4 is being entered for the first time.

Figure 69 (Part 2 of 2). Using the SHIP Command. (Stores selected elements of a file into shared files.)

EXTRACTING DATA FROM EXTERNAL FILES USING LOADFILE

This section tells you how to selectively extract data from a user-defined external data file, which is defined as any file stored outside the application. You can accomplish the following functions using the LOADFILE command:

- Change an entire existing data base over to ADRS II-compatible files. This function is particularly important when ADRS II is being installed as a replacement for an earlier report generation system, and you want to use the existing data base with ADRS II.

- Extract data from reference files that are tied to column 0 of the data file stored in the application. The reference file, in this case, is the external file. You can match/merge the reference file data into selected columns of the application data file. (More information about this function is proved in the section "Extracting and Merging Data from Reference Files" on page 242).

- Create a new application that uses data extracted from a file that is outside your private library. The extracted data is used to create the data file in the new application.

- Bring into your private library of shared files a data file that resides outside your private library.

- Break up a large external file into subsections when the file is too large to fit into your workspace. Each subsection of the file is stored in a separate shared file under a master file name that has a different prefix for each subsection. Each subsection will fit in you active workspace. You can use the ANALYZE command (see the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240) to search through all of the subsections for selected records, which are brought into the active workspace.

HIGHLIGHTS

- The LOADFILE facility can be used in the following types of system environments:

Environment	Type of Auxiliary Processar (AP)		
	DIRECT	SEQ	VSAM
VM/CMS	110AP	111AP	123AP
VSPC	121AP	122AP	123AP
TSO	210AP	111AP	123AP
CICS	121AP	121AP	123AP

- The method of identifying the external file being loaded varies with the type of environment, and with the type of auxiliary processor in use.

- As a minimum, the record layout definition (RLD) for each filed being extracted from the external file must include the ADRS II column number to receive the field, and the starting and ending character positions of the field within the external file records.

- If the refresh or refresh/store option of LOADFILE is being used, and if the RLD does not specifiy ADRS II column 0, sequentially numbered rowids are created in column 0 of the extracted file data in the active workspace. The rowids are assigned in the sequence that the external file records are loaded into the active workspace.

- The RLD can be created and stored in the application as a table, using the EDIT command. Each line of the table specifies the RLD for one ADRS II column. You enter the name of the table during execution of LOADFILE in response to the prompt that requests the RLD data.

- The LOADFILE command allows you to select records from the external file, using any valid selection statement. Only the selected records are loaded into the active workspace.

Four types of information must be supplied to properly execute the LOADFILE command.

1. File identification

2. Record layout

3. Type of operation

4. Record selection statement

Each type of information is discussed below and an example of its use is shown in Figure Figure 70 on page 232.

A. FILE IDENTIFICATION

When prompted, the file identification (fileid) must be applied to LOADFILE. The fileid indicates both the name of the file as well as the type file to be processed. Refer to the descriptions below which pertains to your operating environment.

VM/CMS ENVIRONMENT

FILEID FORMAT: fn ft fm / cc

Where:

fn	Is the CMS FILENAME
ft	Is the CMS FILETYPE
fm	Is the CMS FILEMODE
cc	Is one of the following conversion codes (APL, 192, 370, or BYTE)

Only fn is required for FILEID specification.

Defaults are ft - LOAD
fm - A
cc - 192

> **Note:** Use the 'BYTE' option when specifying conversion codes other than zero (0) in record layout definition (RLD). Refer to the section "B. Record Layout Definition (RLD)" for further explanation. Also, refer to VSAPL for CMS Terminal Users Guide under "Auxiliary Processing".

111 AP (OS and DOS Files)

To process files using the 111 AP the filename fn must be prefixed with the letters 'SQ' (for sequential) and a character variable named fn must be created using the EDIT command that contains a valid CMS FILEDEF command to access the file. For example, if the OS data set name or DOS Fileid is SALES.DATA.MAY and the minidisk where it resides is accessed as the B-disk, you would specify the LOADFILE fileid as 'SQSALES' after creating a character variable 'SALES' with a value of 'FILEDEF SALES B1 DSN SALES DATA MAY'. Note, if the CMS FILEDEF command has been executed prior to invoking LOADFILE as, for example, part of your CMS PROFILE EXEC, then the creation of this variable is optional.

110 AP (CMS Files)

To process a CMS file named 'SALES DATA A1', the LOADFILE fileid would be 'SALES DATA A1'. No special 2 letter prefix for the filename is required for the 110 AP.

123 AP (VSAM Files)

To process files using the 123 AP, the filename fn must be prefixed with the letters 'VS' for VSAM, and two character data variables 'DLfilename' and 'ASfilename', should be created using the EDIT command. 'DLfilename' should contain a valid CMS/DOS DLBL command, while 'ASfilename' should contain the corresponding ASSGN command.

> **Note:** 'ASfilename' is required only for VSAM files residing on DOS formatted disks. If the CMS/DOS DLBL and ASSGN commands have been executed prior to invoking LOADFILE as, for example, part of your CMS PROFILE EXEC, then the creation of these two variables is optional. For example, if VSAM file with fileid 'TEST.INPUT' resides on your B-DISK, you would specify the LOADFILE fileid as 'VSTEST' after creating variables 'ASTEST' with a value of 'ASSGN SYS011 B' and 'DLTEST' with a value of 'DLBL test B DSN TEST INPUT (VSAM SYS011'.)

VSPC ENVIRONMENT

FILEID FORMAT: libno filename:password

Where:

libno	is an optional library number of the VSPC file. If omitted, the library is assumed to be your private library.
filename	is the name of the VSPC file. The filename may be prefixed with a two letter qualifier. (Refer to the specific AP below on how to specify this prefix.
:	is an optional separator required only if a password is to be supplied.
password	is an optional password

121 AP (APL Format Files)

To process an APL format file with filename 'SALES' residing on library 138716, you would specify the LOADFILE fileid as '138716 SALES'.

122 AP (EBCDIC Files)

To process EBCDIC files with filename 'SALES' residing on library 138716, you would prefix the filename with the letters 'SQ' and specify the LOADFILE fileid as '138716 SQSALES'.

123 AP (VSAM Files)

To process VSAM files with a filename 'SALES', you would prefix this filename with the letters 'VS' and specify the LOADFILE fileid as 'VSSALES'.

CICS ENVIRONMENT

FILEID FORMAT: libno filename:password

Where:

libno	is an optional library number of the CICS file. If omitted, the library is assumed to be your private library.
Filename	is the name of the CICS file. The filename may be prefixed with a two letter qualifier. (Refer to the specific AP below on how to specify this prefix).
:	is an optional separator required only if a password is to be supplied.
password	is an optional password

121 AP (APL Format Files)

To process an APL format file with filename 'SALES' residing on library 138716, you would specify the LOADFILE fileid as '138716 SALES'.

121 AP (EBCDIC Files)

To process EBCDIC files with filename 'SALES' residing on library 138716, you would prefix the filename with the letters 'SQ' and specify the LOADFILE fileid as '138716 SQSALES'.

123 AP (VSAM Files)

To process VSAM files with a filename 'SALES', you would prefix this filename with the letters 'VS' and specify the LOADFILE fileid as 'VSSALES'.

TSO ENVIRONMENT

FILEID FORMAT: ddname / cc

Where:

ddname	is the Data Definition (DD) name of the data sets to be loaded. The ddname is specified in a TSO ALLOCATE command which will be invoked by LOADFILE.
cc	is one of the following conversion codes. (APL, 192, 370, or BYTE). cc is optional. If omitted, 192 is assumed.

> **Note:** Use the byte option when specifying conversion codes other than zero (0) in record layout definition (RLD). Refer to Record Layout Definition section for further explanation. Also, refer to VSAPL for CMS Terminal Users Guide under Auxiliary Processing.

111 AP (OS Sequential and PDS Files)

To process files using the 111 AP, the ddname must be prefixed with the letters 'SQ' and a character variable named ddname must be created using the EDIT command that contains a valid TSO ALLOCATE command to access the file. For example, if the OS data set name is SALES.DATA.MAY and it resides on volume 'VSTO3', you would specify the LOADFILE fileid as 'SQSALES' after creating a character variable 'SALES' with a value of 'ALLOCATE DDNAME(SALES) DSN('SALES.DATA.MAY') VOLUME(VSTSO3) SHR'.

> **Note:** If the TSO ALLOCATE command has been executed prior to invoking LOADFILE as, for example, part of your TSO LOGON PROC, then the creation of this variable is optional.

210 AP (TSO Direct Files)

The procedure for processing 210 files is identical to loading 111 files with the exception that no special 2 letter prefix for the ddname is required for the 210 AP.

123 AP (VSAM FILES)

To process files using the 123 AP, the ddname fn must be prefixed with the letters 'VS' for VSAM, and character data variable, 'ALddname', should be created using the EDIT command. 'ALddname should contain a valid TSO ALLOCATE command.

> **Note:** If the TSO ALLOCATE command has been executed prior to invoking LOADFILE as, for example, part of your TSO LOGON PROC, then the creation of this variable is optional. For example, if VSAM file with fileid 'TEST.INPUT' resides on volume 'VSTS03', you would specify the LOADFILE fileid as 'VSTEST' after creating variable 'ALTEST' with a value of 'ALLOCATE DDNAME(TEST) DSNAME('TEST.INPUT') VOLUME(VSTSO) SHR'.

B. RECORD LAYOUT DEFINITION (RLD)

The record layout definition for each field being extracted from the external file contains the following elements in the sequence shown:

```
adrscol* strecno stpos* endrecno endpos* cc / decset
```

---

*Required

Where:

adrscol	ADRS II column number that is to receive the field. Column type (numeric or alphameric) must be compatible with the type of data in the field.
strecno	A positive number that indicates in which physical record the data begins. Required only when logical record being extracted consists of multiple physical records. If no value is specified, a value of 1 is assumed.
stpos	The first character position of the field within the record.
endrecno	A positive number that indicates in which physical record the data ends. Required only is strecno is specified. If no value is specified, a value of 1 is assumed.
endpos	The last character position of the field within the record.
cc	Field conversion code. If no value is specified, a value of 0 is assumed. The defined conversion codes are:

CC	Field Type
0	No conversion
1	EBCDIC
2	PACKED
3	FLOATING POINT
4	BINARY INTEGER
5	ZONED DECIMAL

Notes:

1. For the CICS environment the conversion code is always 1 for VSAM files.
2. On binary integer fields, the field length is restricted to a maximum of 7 bytes.

/	The delimiter, required only if a value for decset is being specified.
decset	The optional implied decimal place setting. This is a positive number that indicates the number of decimal places to adjust the value of an incoming numeric field.

Method of Entering the RLD

The RLD for each field can be keyed in in response to the prompt requesting the RLD data during execution of LOADFILE. Alternatively, the RLD matrix can be stored as a tabular matrix in the application, using the EDIT command to create the table (see the section "General-Purpose Editing, Using the Edit Command" on page 102). The format of the table is the same (adrscol strecno stpos endrecno endpos cc decset), with the exception that the delimiter (/) is omitted. Thus, each line of the table would contain seven numbers, arranged in seven columns.

C. TYPE OF OPERATION

LOADFILE has the following selectable options:

- Refresh. Deletes all files in active workspace, and replaces them with the data extracted from the external file.
- Refresh/Store. Same as refresh, except your active workspace is monitored to determine whether the workspace is approaching a "full" condition. Whenever the workspace is nearing its full capacity, and at completion of the LOADFILE operation, the extracted data currently stored in the active workspace is stored in shared files storage under a master file name. In this way, a large file is reduced to bite-size chunks, with each chunk being stored in a separate shared file under the master file name, followed by a subsection suffix.
- Merge. The rowid in the incoming records is matched against the rowids in column 0 of the existing file in the workspace. If a match is found, the extracted data is merged into selected columns of the matching records. If no match is found, a new record is created.
- Intersect. Same as merge, except extracted records whose rowids do not match up with a rowid in the existing file are not stored.

D. RECORD SELECTION STATEMENT

LOADFILE allows you to selectively extract data records based upon a user defined criteria. This is done by specifying a selection statement in the same manner as used in the select command. For example, suppose you want to extract data from a file into ADRS II, columns 0 through 20 and column 1 contains a 3 character department code. The statement (IF 1 EQ K'73W') would select only those incoming records whose field from which ARDS II column 1 data will be extracted has the characters '73W' once the field is converted.

STEP NO.		
1	Type **LOADFILE**	Proceed to step 2.
2	PROMPT MESSAGE:	?ENTER FILE ID?:
	YOUR RESPONSE:	Type in the file identification in the proper format, as shown in the section "A. File Identification" on page 226. Proceed to step 3.
3	PROMPT MESSAGE:	?ENTER YES TO PRINT FIRST FIVE RECORDS?:
	YOUR RESPONSE:	Make a blank entry if you do not want the first five records printed. Proceed to step 4. If you want the first five records of the external file printed out, type **YES**. The first five records are printed with a column position guide, allowing you to determine the starting and ending character positions for each field of the record. Proceed to step 4.
4	PROMPT MESSAGE:	ENTER ADRS II COL NO., START POS., END POS. OR WHEN DONE.
	YOUR RESPONSE:	Type in the RLD for each field in in the format shown on the preceding page, or type in the name of the table that contains the RLD. Do not strike RETURN or ENTER until RLD for all fields have been entered. Proceed to step 5.
5	PROMPT MESSAGE:	?ENTER TYPE OF OPERATION REFRESH, MERGE,OR INTERSECT (R, M, OR I)?:
	YOUR RESPONSE:	Type **R**, **(R,STORE)**, **M**, or **I** depending upon the type of operation being performed. The **R,STORE** entry (refresh/store) causes the external file to be loaded into one or more shared files. If you typed **R**, **M** or **I**, proceed to step 7. If you typed **R,STORE**, proceed to step 6.
6	PROMPT MESSAGE:	?ENTER NAME OF DATA FILE TO STORE?:
	YOUR RESPONSE:	Type in the basic name under which you want to store all sections of the external file in shared files storage. If two or more files are created, each file will be assigned a number suffix to the basic name that you enter. Proceed to step 7.

Figure 70 (Part 1 of 2). Using the LOADFILE Command - General Procedure

STEP
NO.

7 PROMPT MESSAGE: ?SELECTION STATEMENT OR ALL?:

YOUR RESPONSE: Type **ALL** if you want to load all of the records. If you want to load only selected records, type in an appropriate selection statement (see the section "Selection" on page 77 for details). Proceed to step 8.

8 INFORMATION MESSAGE: The following message appears only if you performed step 6 (store option):

```
  LOADING....
*****(filename) - ADRS II DATA FILE CREATED (date, time)
**********************n RECORDS STORED
(filename) DATA NAME CREATED FOR MULTI-DATA FILENAME
FOR USE WITH THE ANALYZE COMMAND
```

INFORMATION MESSAGE: DONE. ALL n RECORDS SELECTED

OR

DONE. n OF i RECORDS SELECTED

REMINDER MESSAGE: BE SURE TO)SAVE

YOUR RESPONSE: Execute)SAVE to save the application.

Figure 70 (Part 2 of 2). Using the LOADFILE Command - General Procedure

USING LOADFILE WITH FROM/TO TO CHANGE A MULTIFILE DATA BASE TO ADRS II

When ADRS II is being installed as a replacement for a pre-existing report generation system, the data files used with the earlier system can be changed over to ADRS II-compatible format and loaded into your new ADRS II applications. You can convert the external (existing files, set up the new applications, and load the extracted data into the newly setup applications in a single process described in the steps that follow. To facilitate changeover a special file conversion application is created. This application contains stored RLD tables for each file, and stored data file setup command/response string tables for each new application. These command/response string tables are used in the EXPRESS mode.

For example, suppose you have a CMS file called CARD INPUT that you want to load into an ADRS II application in which only column 0 has been set up. CARD INPUT is shown below.

```
CHAIR            927584        592
TABLE            619648         46
LAMP             816482       1435
COUNTER TOP      979384         26
KITCHEN SINK     791494        369
```

1. Use the EDIT command to create a table that will later be used in the EXPRESS mode to set up all columns (except col. 0) in the ADRS

II workspace. Our table is called FSETUP.

```
          FSETUP
      SETUP
      N
      Y
      1
      16/PRODUCT
      6 0/PROD.NO.
      6 0/QTY.SOLD
      ;
      ;
```

2. Use the EDIT command to create a record layout definition (RLD) table. This table is required by the LOADFILE command. Our table is called RLDTAB.

```
      RLDTAB
  1   1 16
  2  24 29
  3  36 39
```

3. To convert the external file and store the converted file in a new ADRS II application. Proceed as follows:

   a. Type **EXPRESS**. Respond to the ?ENTER? prompt with **FSETUP**. This sets up a data base skeleton whose columns are set up like the columns in the CMS file.

   b. Type **EXPRESS** again. Respond to the ?ENTER? prompt with:

      LOADFILE;CARD INPUT;Y;RLDTAB;R;ALL

   The new data base in ADRS II looks like this:

```
(0)        (1)          (2)      (3)
                        PROD     QTY
ID       PRODUCT        NO.      SOLD
___  ________________  _______  ______
001  CHAIR             927584     592
002  TABLE             619648      46
003  LAMP              816482    1435
004  COUNTER TOP       979384      26
005  KITCHEN SINK      791494     369
```

   c. Execute the **TO** command to convert the file into data interchange matrices DIM, DIW, DIN (explained in the section "Passing Data between APL-Based Applications" on page 236).

```
TO
? ENTER COL NO.S TO SEND OR ALL ?: ALL
? ROWIDS OR SELECTED OR ALL ?: ALL
DATA VARIABLES DIN, DIM AND DIW CREATED (DATE)
5 ROWS AND 4 COLS EXTRACTED
NOW ENTER:         )SAVE
                   )LOAD OTHERSYS
                   )COPY  YOURADRSWS DIM DIW DIN
DONE. 5 RECORDS SELECTED
BE SURE TO )SAVE
```

```
┌──────────────────────────────────────────────┐
|                                              |
| DIM                                          |
| 001CHAIR             927584       592        |
| 002TABLE             619648        46        |
| 003LAMP              816482      1435        |
| 004COUNTER TOP       979384        26        |
| 005KITCHEN SINK      791494       369        |
|                                              |
├──────────────────────┬───────────────────────┤
|                      |                       |
|       DIW            |    DIN                |
|   1   3    -1    0   |    ID                 |
|   4  16    -1    0   |    PRODUCT            |
|  20   6     0    0   |    PROD  ,  NO.       |
|  26   6     0    0   |    QTY   ,  SOLD      |
|                      |                       |
├──────────────────────┴───────────────────────┤
|                                              |
|          MATRICES   CREATED                  |
|                                              |
└──────────────────────────────────────────────┘
```

4. If you intend to make a new report with the same data structure as the last report but with different data use, the EDIT command to make a column delete table (in our case, DLSETUP) to erase all columns other than col. 0

```
          DLSETUP
SETUP
N
Y
1
D
3
Y
;
;
```

The number "3" here equals the last sequential column in the new data base.

5. Execute the)SAVE command to save the file conversion application.

6. Load a fresh copy of ADRS II from public library n into the active workspace by typing **)LOAD N ADRS2**. Then, perform the procedure in the section "Changing the Name of an Application" on page 32 to assign a name to the new application. Also, perform the procedure in the section "Checking and Changing the Terminal Setup" on page 31 to make the terminal setup for the new application.

   a. Type **)COPY fileconv DIM DIW DIN**

      where:

      fileconv the wsid of the file conversion application saved in step 5.

   b. In the new application, create a FROMCOLS table using the EDIT command, as described in the section "Passing Data between APL-Based Applications" on page 236. This table should specify column 0, followed by all of the column numbers that were set up in step 1.

   c. Type **FROM**. The new application now contains the converted data file. Execute)SAVE to save the new application.

7. Load the file conversion application back into the active workspace, and perform step 3 to convert the next external file. If, however, a converted file must be stored in shared files rather than in a new application, perform steps 3a and 3b. Then, execute the STORE command (see the section "Storing, Loading, and Deleting Shared Files" on page 205) to store the converted file in shared files under an assigned calling name. Finally, execute step 4.

USING LOADFILE TO MERGE SELECTED DATA FROM A REFERENCE FILE

As discussed in the section "Extracting and Merging Data from Reference Files" on page 242, you can use the INTERSECT option of LOADFILE to merge a reference file into the data file stored in the application, provided that the tie column in the application data file is column 0. Proceed as follows:

1. Load the application containing the data file that is to receive the extracted data from the reference file.

2. Type **LOADFILE**. Respond to the ?ENTER FILE ID? prompt by typing in the fileid for the reference file.

3. Type **YES** in response to the ?ENTER YES TO PRINT FIRST FIVE RECORDS? prompt. The record layout for the first five records is produced.

4. Respond to the remaining prompts with blank entries until you have exited LOADFILE.

5. Using the record layout produced in step 3, develop an RLD table, and store this table in the application, using the EDIT command. Line 1 of the table should contain the RLD for column 0, and lines 2 and up should contain the RLD for the ADRS II columns that are receiving data from the reference file. See topic 3 for details regarding setup of the RLD table.

6. Type **EXPRESS**, and respond to the ?ENTER? prompt by entering the following command/response string:

   LOADFILE;filename;Y;RLD tablename;I;ALL

   Where:

filename	The fileid entered in step 2.
RLD tablename	The name of the table created in step 5.
i	INTERSECT option of LOADFILE.

   When execution is completed, the application data file will contain the data extracted from the reference file.

7. Execute)SAVE to save the application.

PASSING DATA BETWEEN APL-BASED APPLICATIONS

Data organized into row-column matrices contained in any APL-based application (such as ADRS II) can be passed from one application to another, using the TO, FROM, and)COPY commands.

This means you can pass data from one ADRS II application to another, or between an ADRS II application and a non-ADRS II APL-based application.

In the application that contains the data to be passed to the other application, the TO command is executed. This command extracts selected columns from currently selected rows in the data file, and stores the extracted data (in the application) in the following three matrices (tables):

- Data Interchange Matrix (DIM). A character matrix of the row-columnn data that was extracted. Each row of the DIM matrix contains the data extracted from one of the currently selected records in the data file. Each field of the row contains the data from one of the columns. The rows are arranged in the sorted sequence of the data file.
- Data Interchange Width (DIW). A four-column numeric matrix that defines the field format of the DIM matrix. Each line in the DIM matrix defines one of the fields. The field definition includes the starting character number in the DIM matrix, the field (column) width, and the number of decimal positions (numeric columns) or a -1 (alphameric columns).
- Data Interchange Names (DIN). A character array. Each row of the array contains the header name for one of the fields (columns) in DIM.

After the DIM, DIW, and DIN matrices have been created in the application that is sending the data, the application is saved. Then, the application that is to receive the data is loaded into the active workspace. The)COPY command is then executed to copy the DIM, DIW, and DIN matrices from the saved application not the active workspace. Finally, the FROM command is executed to transform the copied DIM, DIW, and DIN matrices into the ADRS II data file format.

HIGHLIGHTS

- The TO command is sensitive to the SELECT command. That is, only the currently selected records are extracted.
- The FROM command can be executed in an already set up application, or in a new application that has not been set up. When executed in an application that has not been set up, the DIW and DIN matrices are used to create the data file setup, eliminating the need to execute the SETUP command.
- A FROMCOLS table, created with the EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102 for details) can be generated to specify which ADRS II columns receive which fields of DIM when FROM is executed. If no FROMCOLS table Figure 71 on page 238 is created, sequentially numbered rowids are generated in column 0 for the records in the DIM matrix. If FROMCOLS is created, it contains a one-line listing of the ADRS II column numbers (space between each column number) that are receiving the data from DIM, as shown in Figure 71 on page 238.

DIM				
FIELDS	1	2	3	4
FROMCOLS TABLE	A	B	C	D

Figure 71. DIM Fields and FROMCOLS TAble. (A, B, C, D are the ADRS II column numbers that are receiving fields 1, 2, 3, and 4 respectively.)

Note: If FROMCOLS table (Figure 71) is created but does not include column 0, sequentially numbered rowids are generated.

EXECUTING TO COMMAND TO EXTRACT DATA

1. Load the application containing the data to be extracted into the active workspace.
2. Select the records that are to be extracted by executing the SELECT command (see the section "Selection" on page 77 for details). Then, if appropriate, execute SORT command to sort the selected records in the desired sequence (see the section "Sorting" on page 76 for details).
3. Type **TO**. Respond to the prompts that appear by specifying the column numbers to be extracted. The sequence in which you specify the column numbers determines the sequence of fields in the DIM matrix. The DIM, DIW, and DIN matrices are now saved in the application.
4. Execute)SAVE to save the application.

COPYING DIM, DIW, AND DIN MATRICES INTO RECEIVING APPLICATION

1. If the application that is receiving the data has already been set up, load the application into the active workspace, and proceed to step 3. If the application receiving the data is new, and has not already been set up, proceed to step 2.
2. Prepare the new application as follows:
    a. Type **LOAD N ADRS2**, where n = the public library number containing ADRS II. This action loads a fresh copy of ADRS II into the active workspace.

    b. Name the new application (see the section "Changing the Name of an Application" on page 32 for details).

    c. Make the terminal setup (see the section "Checking and Changing the Terminal Setup" on page 31 for details), and proceed to step 3.
3. Type **)COPY SENDAPP DIM DIW DIN**, where sendapp is the name of the application where the DIM, DIW, and DIN matrices are stored.

CONVERTING DIM, DIW, AND DIN MATRICES INTO FILE IN RECEIVING APPLICATION

This section describes how to use the FROM command to convert the DIM, DIW, and DIN matrices into a data file in the application receiving the data.

1. Use EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102 for details) to create a one-line FROMCOLS table. The line entry should consist of a list of ADRS II column numbers (space between each column number) that are receiving data from the DIM matrix. List the column number receiving the data from the first field of DIM first, the column number receiving the second field of DIM second, and so on.

2. Type **FROM**, and respond appropriately to the prompting messages, if any. If FROM is executed in a new (not already set up) application, the data file setup is created from the DIW and DIN matrices, and the data file is created from the DIM matrix.

3. If appropriate, you can now erase the DIM, DIW, and DIN matrices from the application, using the)ERASE command. Type **)ERASE DIM DIW DIN** to accomplish the erasure.

STORING AND ACTIVATING DIM, DIW, AND DIN MATRICES IN SHARED FILES

There are instances where it may be advantageous to store a data file in shared files storage in the form of DIM, DIW, and DIN matrices. The TO command creates the DIM, DIW, and DIN matrices in the application. A STORELIST is then created, using the EDIT command, that lists the DIM, DIW, and DIN matrices. Next, the data file (now stored in the DIM, DIW, and DIN matrices) is erased. Finally, the STORE command is executed to store the DIM, DIW, and DIN matrices in shared files.

To use the DIM, DIW, and DIN matrices in shared files, the ACTIVATE command is executed to load the matrices from shared files into the active workspace. Then, the FROM command is executed to create an ADRS II data file from the matrices.

1. Perform steps 1, 2, and 3 of the section "Executing TO Command to Extract Data" on page 238 to create the DIM, DIW, and DIN matrices in the active workspace. DO NOT SAVE the application.

2. Execute SALL to select all records in the data file. Then, execute ERASEROWS to delete all records from the data file.

3. Using the EDIT command (see the section "General-Purpose Editing, Using the Edit Command" on page 102 for details), create a three-line STORELIST that lists the DIM, DIW, and DIN variables.

4. Execute the STORE command to store the DIM, DIW, and DIN matrices in Shared Files under an assigned calling name (see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details).

5. Load the application that is to receive the data stored in step 4.

6. Execute the ACTIVATE command to load the DIM, DIW, and DIN matrices from shared files into the active workspace (see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details).

7. Perform Procedure 3 to convert the DIM, DIW, and DIN matrices into an ADRS II data file.

MULTIFILE INQUIRY ON SHARED FILES, USING ANALYZE

This section tells you how to use the ANALYZE command to extract data from one or more data files stored in shared files storage. The ANALYZE command performs a function quite similar to the SELECT command, with the following differences:

- Unlike SELECT, you can specify the columns as well as the records that you want to examine.
- Unlike SELECT, you can search the records in two or more data files in a single operation.

In effect, the ANALYZE command provides you with a global selection facility.

TASK STEPS

1. Type **ANALYZE**.
2. The prompt ?ENTER FILE NAMES TO BE SEARCHED SEPARATED BY A ,?: prompt appears. Respond by typing in the names of one or more shared files that are to be searched.
3. The prompt ?ENTER SELECTION STATEMENT OR ALL?: appears. Respond by typing a selection statement (see the section "Selection" on page 77 for details), or, if you want all of the records in the files specified in step 2, type **ALL**.
4. The prompt ?ENTER COL.S TO BE RETAINED OR ALL?: appears. If you want to retain all of the columns in the files being searched, type **ALL**. If you want to retain only certain columns, type in the numbers of the columns you want to retain, entering a space between each listed column number (use t between first and last column numbers of a sequential set of column numbers).
5. An information message appears in the following format:

```
                    RESULTS FOR SELECTION.....(ALL or selection statement)

                         FILE ID              HITS
```

   Numbers are assigned to the files whose names were entered in step 2. The FILE ID column lists the file numbers and names, and the HITS column lists, for each file, the number of records that were selected. The total number of hits in all of the files that were searched is also indicated.

6. The information message DONE. ALL n RECORDS SELECTED appears, where n = the total number of hits. Then, the reminder message BE SURE TO)SAVE appears. Respond by saving the application.

HIGHLIGHTS

- All files that are searched must have the same data file setup as that contained within the application, in the active workspace.
- Records and columns that were not among those selected in the files that were searched are retained in a dormant condition within the application until they are awakened by a subsequent execution of ANALYZE.

- The rowids of the records in the combined data file created by ANALYZE are prefixed with the assigned file number and file name (listed in step 5 above) of the file from which each record was extracted.

In the following example, ANALYZE will be invoked to select all records from the previously stored ADRS II files called CUST1 and CUST2. the list command is then used to display the results. CUST1 looks like this:

```
CUST1
(0)     (1)       (2)    (3)      (4)       (5)      (6)
                        PRIOR                        AVG
CUST                    YEARS    THIS                 MO
CODE    NAME            BILLING  MONTH      YTD      PLAN
----  --------  -----  -------  -------  --------  ----
160A  MARKET    ANK    5467      300.00   2713.00   250
253E  YELLOW    DEN    6754      321.45    751.00   325
814G  AUGIE     FW     8000      181.00   2125.00   721
814N  FRIES     IRV    2522      253.00   7506.00   200
```

CUST2 looks like this:

```
CUST2
(0)     (1)       (2)    (3)      (4)       (5)      (6)
                        PRIOR                        AVG
CUST                    YEARS.   THIS                 MO
CODE    NAME            BILLING  MONTH      YTD      PLAN
----  --------  -----  -------  -------  --------  ----
101A  FREIHOF   ATL    6754      321.45    751.00   325
101B  FREIHOF   OKMUL  2740      421.00     46.00    77
101C  FREIHOF   DEN    945        84.50    121.00   550
150A  MARCO     ATL    5467      300.00   2713.00   250
150B  MARCO     OKMUL  10345     965.23   1932.00  1500
150C  MARCO     DEN    3450      890.00    789.00   700
200A  MARCUS    OKMUL  9814      650.40    457.38   375
200B  MARCUS    DEN    800       678.00    365.00   625
```

```
              ANALYZE
ENTER FILE NAMES TO BE SEARCHED
?SEPARATED BY A , ?: CUST1,CUST2
?ENTER SELECTION STATEMENT OR ALL?: ALL
?ENTER COL S TO BE RETAINED OR ALL?: ALL
 .........................
RESULTS FOR SELECTION .ALL
   FILE ID ......HITS
1  CUST1  .......4
2  CUST2  .......8
   TOTAL   ......12
 .........................
DONE  ALL 12 RECORDS SELECTED
BE SURE TO )SAVE


          LIST
?COL NO S?: 0T6
?TITLE?: ALL LINES FROM CUST1 AND CUST2
?SET FORM, THEN CR OR ENTER
ALL LINES FROM CUST1 AND CUST2
```

```
(0)     (1)        (2)   (3)       (4)      (5)      (6)
                         PRIOR                       AVG
CUST                     YEARS     THIS               MO
CODE    NAME             BILLING   MONTH     YTD     PLAN
----  --------  -----  -------  -------  --------  ----
160A MARKET    ANK    5467       300.00  2713.00   250
253E YELLOW    DEN    6754       321.45   751.00   325
814G AUGIE     FW     8000       181.00  2125.00   721
814N FRIES     IRV    2522       253.00  7506.00   200
101A FREIHOF   ATL    6754       321.45   751.00   325
101B FREIHOF   OKMUL  2740       421.00    46.00    77
101C FREIHOF   DEN    945         84.50   121.00   550
150A MARCO     ATL    5467       300.00  2713.00   250
150B MARCO     OKMUL  10345      965.23  1932.00  1500
150C MARCO     DEN    3450       890.00   789.00   700
200A MARCUS    OKMUL  9814       650.40   457.38   375
200B MARCUS    DEN    800        678.00   365.00   625
```

Note: CUST1 and CUST2 came from two separate data files. You cannot search two separate data files with the SELECT command. That is why the ANALYZE command was used here.

EXTRACTING AND MERGING DATA FROM REFERENCE FILES

Note: In the discussions and procedures that follow, the data base is called the application data file, and the file that contains the data to be extracted and merged into the data base is called the reference file.

This section tells you how data contained in reference files can be extracted and merged into a data base stored in the active workspace, using the LOADFILE, GETCHAR,)COPY, and CALCULATE commands.

When a data base contains one or more columns of data that can be extracted from a reference file rather than being keyboarded, substantial time and effort can be saved in creating the data base.

The only requirement that must exist in order to extract and merge the reference file data is that there must a common record access key. That is, one of the columns in the data base must contain an access key that is tied to the same access key in one of the columns of the reference file.

When this requirement is satisfied, the record access key in the reference file records is matched to the record access key in the records of the data base. When a matchup is found, selected columns from the reference file are merged into selected columns of the data file.

The most common situation in which reference files are merged into the data base is when the data base includes one or more columns that contain reference numbers or codes (such as employee number, customer code, account number, or specification number), and reference files exist in which the rowid in column 0 contains the corresponding reference numbers or codes. Columns 1 and up of the reference files contain detailed descriptive data for each such reference number or code (separate record for each code). If some or all of this descriptive data is required in the data base, it can be extracted from the reference file and merged into the data base.

SELECTING THE BEST METHOD

Selection of the best method to use the merging of data depends upon which column of the application data file provides the tie to the reference file, or which reference file column contains the tie to the application data file.

- If reference file column 0 is tied to the application data file, and if the referenced data is only required in reports, refer to the section "Setting Up Patterned Reports" on page 145, and set up the report as a patterned report with a repeating pattern that references the reference file data contained in a related file.

- If application data file column 0 is tied to the reference file, use the INTERSECT option of the LOADFILE command (see the section "Extracting Data from External Files Using LOADFILE" on page 225 for details). The reference file is the external data file, and the application data file is the existing file in the active workspace.

- If the application data file column tied to the reference file is not column 0, see the procedure immediately following.

PROCEDURE WHEN THE TIE TO THE REFERENCE FILE IS NOT APPLICATION DATA FILE COLUMN 0

Note: The following requirements must be satisfied to successfully accomplish this procedure:

- The tie columns in the reference file and the application data file must both be alphameric columns with identical column widths.

- Each application data file column that receives data from the reference file must have the same column width as the corresponding column in the reference file.

1. Load the application that is used with the reference file that is normally not the same applications as the one that contains the data base into the active workspace. If the reference file is stored in shared files, activate the reference file into the active workspace (see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details). Sort the reference file into ascending order on the column number of rhe reference file that is tied to the application data file.

2. Type *FILENAME←GETCHAR C0 C1 C2 . . . CN*

   where:

   filename Is the unique name you assign to the GETCHAR matrix that is being created by the GETCHAR command (see "Command Highlights" on page 252 for details).

   CO Is the reference file column number that is tied to the application data file.

   Cl C2...Cn Are the reference file column numbers containing the data being extracted.

3. Save the application that contains the stored GETCHAR matrix.

4. Load the application used with the application data file into the active workspace. If the application data file is stored in shared files, activate the application data file into the active workspace

(see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details).

5. Sort the application data file into ascending order on the column number of the application data file that is tied to the reference file.

6. Type **)COPY refile filename**

   where:

refile	Is the name of the application stored in step 3.
filename	Is the name of the GETCHAR matrix created in step 2.

7. Use the SETUP command (see the section "Setting Up the Data File Using the SETUP Command" on page 34 for details) to create a new column (column n) in the application data file setup. The new column will be an alphameric column with a width equal to the combined width of the columns C1 C2...Cn in step 2.

8. Type **ADDLOCK** to prevent the creation of any new records in the application data file.

9. Type **CALCULATE.** Respond to the ?CA? prompt by typing

   A(tie col) .TLU V'filename' = n

   Note: Parentheses do not appear in the typed entry.

   where:

tie col	Is the application data file column number that is tied to the reference file.
filename	Is the name of the GETCHAR matrix copied in step 6.
n	Is the number of the column created in step 7.

10. At the completion of step 9, the extracted data from the reference file, contained in the GETCHAR matrix, has been stored in catenated (side-by-side) form in column n of the records where a matchup was found between the code in the "tie" column of the application data file, and the code in the tie column of the reference file (now contained in the GETCHAR matrix).

11. You must now move each field of the data in column n into the application data file column that is to receive the data in the field. This is accomplished, for each field, by entering a calculation statement in the following form:

    ?CA?: **An(char pos) = C**

    where:

n	The column number created in step 7.
char pos	The numbers (first through last) of the character positions within column n that contain the field being entered into column c.
C	The column number that is receiving the data from the field.

12. After all fields of the column n data have been loaded (in step 11) into the columns that are receiving data from the reference file, execute the QUERY command with the DATA option (see the section "Querying the Application" on page 62) and verify that all columns are properly loaded with data from the reference file.

13. If all data was transferred properly, you can now erase the GETCHAR matrix from the application by typing **)ERASE filename,** where filename is the name of the GETCHAR matrix.

    Note: You can create a stored program (using the PROGRAM command) to accomplish steps 9 through 12. In this case, perform steps 1 through 8. Then, execute the COMPUTE command and enter the stored program number. After all computations are completed, proceed to step 12.

A. PROTECTING THE DATA BASE

PROTECTING DATA FILE USING ADDLOCK AND IDLOCK

This task tells you how to protect and unprotect the data file, as follows:

- Setting IDLOCK on prevents any changes to existing records in the file.
- Setting ADDLOCK on prevents new records from being added to the file.
- Setting IDLOCK and ADDLOCK both on completely protects the file.

Task Steps

1. Type **IDLOCK**. The message IDLOCK NOW ON or IDLOCK NOW OFF appears. If IDLOCK is not in the correct state, type **IDLOCK** again.
2. Type **ADDLOCK**. The message ADDLOCK NOW ON or ADDLOCK NOW OFF appears. If ADDLOCK is not in the correct state, type **ADDLOCK** again.

Highlights

- IDLOCK and ADDLOCK must both be off if you are inserting new rowids into the data file, using either the ROWIDS command or the INSERT subcommand of the DATA mode.
- IDLOCK must be off if you are updating existing records, using INPUT, FASTROW, FASTCOL, or the UPDATE subcommand of the DATA mode.
- IDLOCK must be off to change an existing rowid, using the ROWIDS command.
- ADDLOCK must be off if you are entering new records.
- IDLOCK must be off if you are deleting existing records from the file.

B. SPECIAL DATA INPUT/OUTPUT OPERATIONS

EXAMINING SETUPS USING SETPAGE, SETSPACE, SETSPECIAL, AND SETCON

This task tells you how to examine miscellaneous setups in the application, using the SETPAGE, SETSPACE, SETSPECIAL, and SETCON commands.

- Executing SETPAGE allows you to examine the current settings for lines per page, top and bottom margins, automatic pagination, date stamp, and line width. These settings define the page setup for reports.

- Executing SETSPACE allows you to examine the current setting of the line spacing for reports.

- Executing SETSPECIAL allows you to examine the current settings for handling zero entries, negative numbers, and numbers greater than 999 in numeric columns of reports.

- Executing SETCON allows you to examine the current settings for consolidation of files shipped to the consolidator.

Task Steps

1. Type the command that produces the information you want. The setup information now appears.

2. Strike the ENTER or RETURN key (blank entry) in response to each prompting message until the command is exited.

CHANGING DATA-ENTRY AND EXPRESS MODE SEPARATORS

This section tells you how to change the data-entry separator when the currently chosen separator (normally a comma) is in conflict because it is used within the data entries.

This task also tells you how to change the separators (semicolon and colon) used in conjunction with the EXPRESS mode.

Task Steps

1. If needed, select an alternate entry separator character that is not used within the data columns being updated.

2. Type **SEPARATORS**. The information message ENTRY SEPARATOR IS A___ appears, indicating the currently selected separator character (normally a comma).

3. Respond to the prompt message ?NEW SEPARATOR?: by typing in the separator character chosen in step 1. The information message NOW:___ appears to confirm that the character you entered will now be used as the separator.

4. The information message EXPRESS ENTRY AND COMMAND SEPARATORS ARE ___ appears, indicating the currently selected separators for the EXPRESS mode (normally semicolon and colon).

5. Respond to the ?ENTER TWO NEW CHARACTERS TO CHANGE?: prompt as follows:

    a. If you do not wish to change the EXPRESS mode separators, make a blank entry.

    b. If you want to change either or both EXPRESS mode separators, select the alternate separator character(s) to be used, and type in the selected separator characters (character to replace the semicolon first, followed by the character to replace the colon). The information message NOW:___ appears to confirm that the two characters you entered will not be used as EXPRESS mode separators.

6. Respond to the BE SURE TO)SAVE message by executing)SAVE.

SETTING UP REPORT OUTPUT CONTROLS

This section tells you how to set up report output controls in your application, using the SETPAGE, SETSPACE, SETSPECIAL, SETDEC, and EDIT commands. The report output controls include:

- SETPAGE
  - Top and Bottom Margins
  - Number of Lines per Page
  - Number of Characters per Line
  - Automatic Page Numbering
  - Date Stamp.
- SETSPACE
  - Line Spacing
- SETSPECIAL
  - Handling of zeros in numeric columns
  - Handling of negative numbers in numeric columns
  - Handling of numbers greater than 999 in numeric columns
- SETDEC
  - Changing decimal position settings
- EDIT
  - Fold point for reports that exceed the page width

LIST OF TASKS

1. Using SETPAGE and SETSPACE commands
2. Using the SETSPECIAL and SETDEC commands
3. Using EDIT command to change the fold point

REPORT FORMAT ELEMENTS AFFECTED BY REPORT OUTPUT CONTROLS

1. The SETPAGE (see task 1) command is used to set up the following format elements of a report:
   - The number of lines in the top and bottom margins of each report page. Initial value is 5 lines.
   - The number of print lines per page. Initial value is 66 lines. This is controlled by changing the number of lines per inch.
   - The character width of the print line (number of characters). Initial value is 130.
   - Selection or suppression (initialized ON) of automatic page numbering at the bottom of each page. (If footnotes are included in the report, the footnotes suppress the page number)
   - Selection or suppression (initialized ON) of an automatic date stamp at the bottom of each page. If footnotes are included in the report, the footnotes suppress the date stamp)
2. The SETSPACE command (see task 1) is used to define the line spacing as single (initialized value), double, triple, etc. between print rows on the page.

3. The SETSPECIAL command (see task 2) is used to set up the following format elements of the numeric columns

   - Suppression of zero entries, or replacement of zero entries with another symbol (initialized with 0 symbol).
   - Parentheses used to indicate negative numbers (initialized OFF)
   - Suppression or selection of commas placed in numbers greater than 999 (initialized OFF).

4. The SETDEC command (see task 2) allows the decimal position established in the data file setup to be changed for individual rows.

5. The EDIT command (see task 3) allows the system variable FOLD (initialized at 255) to be changed to any desired character position for reports that exceed the page width. The fold point, in this case, should be set for a location in the space between two adjacent columns so that the fold does not break a column in half.

TASK 1: USING SETPAGE AND SETSPACE

This task tells you how to use the SETPAGE and SETSPACE command to change the format elements controlled by these commands.

Task Steps

1. Type **SETPAGE**.

2. The following information appears as shown below (the initialized settings are shown):

```
CHANGE ANY BY ENTRY UNDER PRESENT SETTING

LINES/     TOP     BOT       PAGE     DATE/
PAGE       MARG    MARG     NUMBER    TIME

 66         5       5         ON       ON
```

3. To change any of the above, type the change on the line below the current setting. Your typed entry must be made under the broken line for the column in which the change is being entered.

4. The prompt message ?LINE WIDTH IS n. NEW WIDTH?: appears. The initialized setting for n is 130 characters per line. If you want to keep the current setting, make a blank entry. If you want to change it, type in the new character width. If the width is changed, the information message NOW nn appears, where nn is the new line width.

5. Respond to the BE SURE TO SAVE message by saving the application.

6. Type **SETSPACE** if you want to change the line spacing.

7. The prompt message ?NOW n. NEW SETTING?: appears. The initialized setting for n is 1. If you want to keep the current setting, make a blank entry. If you want to change it, type in the desired spacing between lines. If the spacing is changed, the information message NOW n appears, where n is the new line spacing.

8. Repeat step 5.

TASK 2: USING SETSPECIAL AND SETDEC

This task tells you how to use the SETSPECIAL and SETDEC commands to control format elements of numeric columns.

Task Steps

1. Type **SETSPECIAL**

2. The following information appears as shown below (the initialized settings are shown):

```
CHANGE UNDER CURRENT SETTINGS
ZERO
SUPR
CHAR.S     COMMAS      PARENS

 0          OFF         OFF
```

3. To change any of the above, type the change on the line below the current setting. Your typed entry must be made under the broken line for the column in which the change is being entered. You are restricted to entering ON or OFF in the COMMAS and PARENS columns. If you want zero entries to be blank, type **BL**. If you want to use some other symbol (or symbols) for zero entries, type the desired symbol or symbols (up to 6 characters).

4. Respond to the BE SURE TO SAVE message by saving the application.

5. Type **SETDEC** if you want to change the decimal position for any record.

6. The following information message appears:

```
ON EACH LINE ENTER ROWID? N1 N2
N1 IS A COL NO. OR A ZERO TO AFFECT ALL COLS
N2 IS A NUMBER OF DECIMAL PLACES
```

7. The prompt message ? ?: appears. Type in the following:

   a. The row number of the record in which you want to change the decimal position followed by a slash(/)

   b. Next, type in the column number (or 0 for all columns) where the change is being made.

   c. Next, enter a space, followed by the desired number of positions to the right of the decimal point.

8. Repeat step 7 for all records that require a change in the decimal place. After the last change is entered, respond to the next ??: prompt by making a blank entry.

9. The prompt message ?LIST SETTING? Y/N APPEARS. If you want a list of the current SETDEC settings, type **Y**. The list is produced. Type **N** and proceed to step 10.

10. The prompt message ?ERASE OR ADD E/A?: appears. Make a blank entry if you don't have to erase or add any entries, and repeat step 4. If you want to add an entry, type **A** and repeat step 7. If you want to erase an entry, type **E**, and proceed to step 11.

11. The prompt message ?ROW NO.S TO ERASE?: appears. Type in the rowid numbers (separate with commas) whose decimal settings you want to erase. The message n ROW(S) ERASED appears. Go to step 8.

    Note: On completion of SETDEC, all programs must be recompiled before execution.

TASK 3: USING EDIT COMMAND TO CHANGE FOLD POINT

This task tells you how to change the fold point, using the EDIT command.

Task Steps

1. Type **FOLD**. The current value (initialized at 255) of the fold point should be produced.
2. If you want to change the current value, type **EDIT**, and proceed to step 3.
3. In response to the ?What? prompt message, type **FOLD**.
4. The following information message appears:

   ```
   EDITING FOLD
   FOLD HAS 1 LINE
   ```

5. In response to the ?LINE NO. OR LIST?: prompt message, type **L**. (list).
6. The current value on line 1 appears. Then, the prompt message

   ?LINE 1 OR I,D,C, OR H?: appears. Type **C**.

7. The prompt message ?OLD?: appears. Type in the current value noted in step 6.
8. The prompt message ?NEW?: appears. Type in the new fold point character number. This character number should place the fold point in the spaces between two adjacent columns so that a column is not split in the printout.
9. The prompt message ?LINE NO. OR LIST?: appears again. Make a blank entry.
10. The information message FOLD EDITING DONE appears, followed by the BE SURE TO SAVE message. Respond by saving the application.
11. Type **FOLD**. The new value entered in step 8 should appear.

CHAPTER 6. DEALING WITH APL CHARACTER DATA

COMMAND HIGHLIGHTS

Command	**Description**
GETCHAR and SETCHAR	GETCHAR extracts data from one or more numeric and/or alphameric columns of the currently selected records. The extracted columnar data is catenated (placed side-by-side) in a one-column character table (one line for each selected record). SETCHAR lets you re-enter character data into selected columns of the currently selected records.
GETMAT and SETMAT	GETMAT extracts data from one or more numeric columns of the currently selected records, and creates an APL numeric matrix of rows and columns. Each row of the matrix contains the row values from the selected numeric columns for one of the selected records. User-written APL functions can then be performed, using the EXECUTE operator. SETMAT lets you re-enter numeric column data from the GETMAT matrix into selected columns of the currently selected records.
GETDAT and SETDAT	These commands perform functions that are identical to GETMAT and SETMAT. Unlike GETMAT and SETMAT, however, the matrices can be assigned user-defined names, and these names can be used in calculation expressions whose results (also a matrix) can be assigned user-defined names.
APL	This is a monadic (single-argument) operator that can be invoked in the ADRS II conversational mode. The right argument is a command, enclosed in single quotation marks, of the host system under which ADRS II operates. Causes the host command to be executed. A numeric scalar return code is returned as an explicit result.
SETFPS	This command defines the type of time period data (annual, quarterly, etc.) to be used in financial planning computation statements, using the Financial Planning System (FPS) Calculation Interface.

EXTRACTING AND STORING APL CHARACTER DATA

Data from selected numeric and alphameric columns of currently selected records in the data file are converted into a character table, using the GETCHAR command. GETCHAR is a dyadic (two-argument) operator. The left argument is the name you assign to the character table to be created. The right argument is the list of column numbers (space between each column number) from which data is to be extracted, in the left-to-right sequence that you want the data to appear in the character table.

The character table created by GETCHAR is a single-column table, in which each line of the table contains the data extracted from one of the currently selected rows in the data file. The character data from all of the extracted columns is catenated (placed side-by-side) with no spaces between fields (columns).

GETCHAR can be invoked in the ADRS II conversational mode. The entry has the following format:

TABLENAME←GETCHAR LIST OF COL.NO.S

where:

tablename	The name you assign to the GETCHAR-created character table
List of Col. No.s	The list of the column numbers from which you want to extract data

To enter a GETCHAR calculation statement under the CALCULATE or PROGRAM command, prefix the above entry with **EXECUTE**.

You can display the contents of any GETCHAR-created character table by simply typing the assigned name of the table. The character table can be edited by executing the EDIT command, and responding to the ?WHAT? prompt by typing the name of the table.

SETCHAR lets you re-enter selected fields of character tables created by GETCHAR (or any other single-column character table) into selected columns of the currently selected records in the data file. SETCHAR is a dyadic (two-argument) operator. The left argument is the name of the character table. The right argument contains a three-element vector for each data file column that is receiving data from the character table. The three-element vector (triplet) has the following format:

colno stpos endpos

where:

colno	The ADRS II column number that is receiving the data from the character table.
stpos	The character position number of the first character of the field in the character table that is being entered into the column.
endpos	The character position number of the last character of the field in the character table that is being entered into the column.

SETCHAR can be invoked in the ADRS II conversational mode. The entry has the following format:

tablename SETCHAR triplet 1, triplet 2,.....triplet N

where:

tablename	The assigned name of the character table
triplet 1, triplet 2,...triplet N	

The three-element vectors (defined above for each column that is receiving data)

To enter a SETCHAR statement under the CALCULATE or PROGRAM command, prefix the above entry with **EXECUTE**.

Since GETCHAR and SETCHAR are both sensitive to SELECT, care must be taken that the same records selected when GETCHAR is executed are also selected when SETCHAR is executed, otherwise the data base will be scrambled.

Example, GETCHAR/SETCHAR Commands:

```
        NEWTAB←GETCHAR 0 2
```

GETCHAR is used above to extract data from columns 0 and 2 from the currently selected records (in our example, 5 records). The character matrix is assigned the name "NEWTAB." The contents of the matrix can be displayed by typing the name "NEWTAB."

```
      NEWTAB
226BACKUP
220CLEARANCE
118EMERGENCY
112FOG
113SPOTLIGHT
```

SETCHAR is used to store the data back in ADRS II format. SETCHAR will set the data based upon matching the rowids in column 0 with the incoming character matrix (in this case, NEWTAB). If the rowids do not match or if column 0 is not part of the incoming data, new rows are added to the data base in sequential order.

```
NEWTAB SETCHAR 0 1 3,2 4 12
```

Column 0 data is extracted from positions 1 through 3, and from column 2, positions 4 through 12.

INVOKING APL AND HOST SYSTEM EXPRESSIONS

APL Command. In the EXPRESS mode (see the section "Operating in EXPRESS Mode" on page 194 for details) and executable APL expression will be accepted as a valid ADRS II command by typing:

APL 'APL expression'

If you have a knowledge of ADRS II internals, APL allows you to adjust the execution of EXPRESS dynamically.

HOST Command. This command provides a standard interface to the commands of the host systems under which ADRS II operates. HOST uses command auxiliary processor 100 for all communications with the host system. You specify a host command by making the following entry:

HOST 'Host command'

Execution of HOST returns a numeric scalar return code as an explicit result.

CREATING AND USING APL MATRICES OF NUMERIC DATA

Data from selected numeric columns of currently selected records in the data file are converted into an APL numeric matrix using the GETMAT command. GETMAT is a monadic (single-argument) operator whose right argument is the list of column numbers (space between column numbers) from which data is being extracted, in the left-to-right sequence that you want the columns to appear in the matrix.

The APL numeric matrix created by GETMAT is assigned the name MAT. The matrix consist of a row-column matrix of numeric values, in which each row contains the columnar data extracted from one of the currently selected records.

GETMAT can be invoked in the ADRS II conversational mode. The entry has the following format:

GETMAT List of Col. No.s

where:

List of column numbers	The list of column numbers from which data is being extracted.

To enter a GETMAT statement under the CALCULATE or PROGRAM command, prefix the above entry with execute.

Once a numeric matrix is created by GETMAT, it can be operated upon by user-written APL functions. The results are stored back in the matrix. The user-written APL functions can be entered as calculation statements under the CALCULATE or PROGRAM command by prefixing the APL expression with execute.

You can display the contents of MAT by simply typing the name MAT.

You can update selected columns in a selected row of MAT by typing the following expression:

```
MAT [R;C1 C2...CN] ← RV1 RV2...RVN
```

where:

r	The row (line) number in the matrix being updated
C1 C2...CN	The numbers (1 is the left-most column) to be updated
RV1 RV2...RVN	The updated rows values for columns 1, 2,...N that are being entered.

You can perform across and down calculations on selected rows and column numbers. Figure 72 on page 256 shows some examples:

GETMAT 4 5 6

GETMAT makes a matrix out of columns 4 through 6 (only currently selected rows are included). Type **MAT** to see what GETMAT did.

```
         MAT
7000      15       9
5600       8       4.8
1040     300     180
```

Examples of updating the current value of MAT:

Update:

```
MAT [2;1 2 3]←100 1 10
```

Explanation: Put the values of 100, 1, and 10 into row 2, columns 1, 2, and 3.

Current value of MAT:

```
        MAT
7000    15     9
 100     1    10
1040   300   180
```

Update:

```
MAT [3;]←MAT[1;] - MAT [2;]
```

Explanation: Subtracts row 2 from row 1 and stores it in row 3.

Current value of MAT:

```
       MAT
7000     15      9
 100      1     10
6900     14     -1
```

Note: MAT[R;] refers to row number and MAT[;C] refers to column number.

Figure 72. Using GETMAT Command - Examples

SETMAT lets you re-enter selected columns of MAT back into selected ADRS II numeric columns of the currently selected records.

SETMAT is a monadic (single-argument) operator whose right argument is the list of ADRS II column numbers that are to receive the data (the first column number listed receives data from the left-most column in the matrix, the second column number listed receives data from the matrix column that is second from the left, and so on.

SETMAT can be invoked in the ADRS II conversational mode. The entry has the following format:

setmat List of Col. No.s

where:

List of Col. No.s	The list of column No.s (space between each column number) that are receiving data from MAT

To enter a SETMAT statement under the CALCULATE or PROGRAM command, prefix the above entry with execute.

Since GETMAT and SETMAT are both sensitive to SELECT, care must be taken that the same records selected when GETMAT is executed are selected when SETMAT is executed, otherwise the data base will be scrambled.

Note that any matrix created by GETMAT is always assigned the name MAT, thus only one MAT matrix can exist in the application. To allow the creation of more than one matrix, the GETDAT and SETDAT commands are provided. These commands are both dyadic operators, in which the left argument is the assigned name of the numeric matrix, and the right argument is the list of column numbers from which data is being extracted (GETDAT) or the list of column numbers receiving data from a GETDAT-created matrix (SETDAT).

The names of GETDAT-created matrices can be used in calculation expressions, and the results of the calculations are stored in a new matrix that is given a new name.

For example:

QTYSOLD←GETDAT 1 2 3 4	Create a matrix named QTYSOLD from ADRS II columns 1 through 4.
UNITPRICE←GETDAT 5 6 7 8	Create a matrix named UNITPRICE from ADRS II columns 5 through 8.
*SALES←QTYSOLD * UNITPRICE*	Create a new matrix named SALES that contains the result of multiplying the values in the QTYSOLD matrix by the values in the UNITPRICE matrix.
SALES SETDAT 9 10 11 12	Store the row values from the SALES matrix in columns 9, 10, 11, and 12 of the currently selected records.

Other than the fact that GETDAT and SETDAT have left arguments (matrix name), these commands are identical in all respects to the GETMAT and SETMAT commands.

EXAMINING USER-DEFINED AND SYSTEM-DEFINED VARIABLES

This task tells you how to examine various user-defined and system-defined variables in the application.

Task Steps

1. To obtain a complete list of all variable names, type **)VARS**. The list is produced. User-defined variables are prefixed by X̲ V̲ N̲.

2. To obtain a complete list of all user-defined variable names created by the EDIT command, and all system-defined variable names that have been modified using the EDIT command, type **EDITNAMES**. The list is produced. To obtain the values associated with any listed variable,

type the name of the variable. The values of the variable are displayed or printed.

3. To obtain a listing of business factor names and values, type **BUSFACTS**. Then, proceed as follows:

   a. Strike ENTER or RETURN key until the following prompt message is produced:

      ?n BFS EXIST, LIST?: (type Y)

   b. A listing of the business factors is produced, in the following format:

      NAME......ASSIGNED VALUE......(NUMERIC)

   c. Strike ENTER or RETURN key until the BUSFACTS command is exited.

4. The values of the following commonly used system-defined variables can be obtained by simply typing the name of the variable as it appears in Figure 73.

VARIABLE NAME	DEFINITION
COPIES	Specifies the number of report copies produced by hard-copy printer.
FOLD	Specifies the character position of the fold point for reports having a line width in excess of 130 characters.
MAXPAGES	Specifies the maximum number of pages in a report.
PAGENO	The current page number of the report being generated.
PLOTCONTROL	Symbols used in generating bar charts and graphs.
ROWS	Number of rows in the current control break group of a report.
STORELIST	List of application contents to be stored by STORE or STORE ALL command.
SORTSEQ	Current sort sequence of data file (list of alphabetic characters showing that a non-underscored letter is sorted before the same letter that is underscored). Numbers are sorted in the normal sequence.
TROWS	The total number of rows in a report.

Figure 73. Obtaining Values of Commonly Used System-Defined Variables

CHAPTER 7. MISCELLANEOUS TASKS

This chapter contains the following three sections:

- Glossary of commands
- Error recovery
- Terminal translate tables

GLOSSARY OF COMMANDS

This section provides a glossary of the APL system commands and the ADRS II commands. First, a list of commands by categories is provided. Then, separate glossaries are provided for APL system commands and ADRS II Commands. The glossary contains a brief description of the command, and provides reference to the applicable sections for more details.

Note: Commands associated exclusively with error recovery are not listed in this section. See the section "Error Recovery" on page 265 for descriptions of these commands.

LIST OF COMMANDS BY CATEGORIES

APL SYSTEM COMMANDS

)COPY,)DROP,)ERASE,)LIB,)LOAD,)OFF,)SAVE,)VARS,)WSID

COMMANDS THAT OPERATE ON EXTERNAL FILES

ACTIVATE, ANALYZE, CONSOL, LOADFILE, PURGEFILE, READER, SHIP, STORE

COMMANDS USED IN CONNECTION WITH DATA ENTRY INTO THE DATA FILE

ADDLOCK, DATA, ERASEROWS, FASTCOL, FASTROW, FROM, IDLOCK, INPUT, ROWIDS, SEPARATORS, SETCHAR, SETDAT, SETMAT, SETMIX

COMMANDS USED TO EXTRACT DATA FROM THE DATA FILE:

GETCHAR, GETDAT, GETMAT, TO

COMMANDS USED TO STORE SETUPS, VARIABLES, ETC. IN THE APPLICATION

BUSFACTS, EDIT, FIX, GETCHAR, GETDAT, GETMAT, JOBNAME, PROGRAM, SETCON, SETREPORTS, SETUP, TERMINAL, TO

COMMANDS USED IN CONNECTION WITH GENERATION OF REPORTS

HOLDPAGE, LIST, PLOT, PRINTER, PRINTEROFF, PRINTERON, QUERY, REPORTS, SETDEC, SETPAGE, SETSPACE, SETSPECIAL,

COMMANDS USED IN CONNECTION WITH SELECTION, SORTING, AND CALCULATIONS

CALCULATE, COMPUTE, HOST, PROGRAM, SELECT, SETFPS, SORT, WHICH

COMMANDS USED IN CONJUNCTION WITH THE EXPRESS MODE

APL, EXPRESS, HUSH, QUIET, SEPARATORS, TALK

COMMANDS USED ON NON-APL DISPLAY TERMINALS TO GO IN AND OUT OF ADRS II CONVERSATION MODE

DONE, GO

COMMANDS USED FOR ERROR RECOVERY (See "Error Recovery" on page 265 for details.)

CSTACK, DATACHECK, RESTART, RESUME

APL SYSTEM COMMANDS

These commands can be executed only when the terminal is in the desk calculator mode. For display terminals without APL keyboards, desk calculator mode is entered by executing the ADRS II command DONE.

COMMAND	**DESCRIPTION**
)COPY appname varnames	Copies into the active workspace the variable data (varnames) from the stored application having a wsid of appname (see "Using)COPY and)ERASE Commands with Variables" on page 33 for details).
)DROP wsid	Drops from the private library the application whose wsid is specified (see "Dropping an Application from Your Private Library" on page 33 for details).
)ERASE varname	Erases from the active workspace the variable data whose name is specified (see "Using)COPY and)ERASE Commands with Variables" on page 33 for details).
)LIB	Produces a list of application names in private library
)LOAD n ADRS II	Loads a fresh copy of the ADRS II system code (stored in public library n) into the active workspace (see "Defining a New Application" on page 25 for details).
)LOAD wsid	Loads the application whose wsid is specified into the active workspace (see "Loading an Application into the Active Workspace" on page 31 for details).
)OFF	Causes terminal to sign off from the system (see "Sign-on and Sign-off" on page 25 for details).
)SAVE	Stores the contents of the active workspace in application workspace storage (see "Saving an Application" on page 29 for details)
)VARS	Produces a complete listing of variable names (see "Examining User-Defined and

	System-Defined Variables" on page 257 for details).
)WSID wsid	Assigns the name wsid to the application in the active workspace (see "Changing the Name of an Application" on page 32 for details).

ADRS II COMMANDS

These commands must all be executed in the ADRS II conversational mode. For display terminals without APL keyboards, the ADRS II conversational mobe is entered from the desk calculator mode by executing the APL system command GO.

COMMAND	DESCRIPTION
ACTIVATE	Loads into the active workspace a file from shared files storage (see "Storing and Activating Applications in Shared File Storage" on page 206 and "Storing, Loading, and Deleting Shared Files" on page 205 for details).
ADDLOCK	Used to protect/unprotect the data file from addition of new records (see "Protecting Data File Using ADDLOCK and IDLOCK" on page 246 for details).
ANALYZE	Provides global selection and inquiry facility for shared files. Selected records from the shared files that are searched are made available in the active workspace (see "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240 for details).
APL	Permits execution of APL expressions in EXPRESS mode (see "Operating in EXPRESS Mode" on page 194 and "Extracting Data from External Files Using LOADFILE" on page 225 for details).
BUSFACTS	Permits entry and deletion on business factors (see "Using the BUSFACTS Command to Create Business Factors" on page 106 for details).
CALCULATE	Allows computation statements to be entered for immediate execution (see "Basic-Level Computations" on page 93 for details).
COMPUTE	Executes stored programs that were stored using the PROGRAM command (see "Basic-Level Computations" on page 93 for details).
Commands	Produces a list of all ADRS II commands (see "Detailed Procedure" on page 26 for details).
CONSOL	Executes the file consolidation set up by the SETCON command (see "Consolidating Shared Files" on page 210 for details).
DATA	Causes entry into full-screen data edit mode. Subcommands are provided for data retrieval and data entry (see "Using Data and Scroll Modes with Full-Screen Edit" on page 42 for details).
DONE	For display terminals without APL keyboards, this command is used to exit the ADRS II conversation mode and enter the desk calculator mode, where APL system commands are executed (see Appendix A for details).

EDIT	Used to create tables of variable data (see "General-Purpose Editing, Using the Edit Command" on page 102 for details).
ERASEROWS	Used, in conjunction with SELECT command, to selectively erase records from the data file (see "Selectively Deleting Records from File" on page 83 for details).
EXPRESS **or** **EXP**	Used to speed up command execution by suppressing prompts. Commands and responses are entered in strings. Tables of command/response strings can be called (see "Operating in EXPRESS Mode" on page 194 for details).
FASTCOL	Provides data entry down a column in selected rows (see "Data Entry Using FASTCOL" on page 54 for details).
FASTROW	Provides data entry in selected columns of selected rows (see "Data Entry Using FASTROW" on page 51 for details).
FILL	Provides a means of creating fixed-width data file columns and sequentially numbered rowids (see "Using the FILL Command to Determine Workspace and Data File Size" on page 202 and "Consolidating Shared Files" on page 210 for details).
FIX	Used to store ADRS II command programs in the application (see "Fixing and Freeing ADRS II Command Programs in Application" on page 203 for details).
FREE	Used to delete from the application ADRS II command programs that were stored using FIX (see "Fixing and Freeing ADRS II Command Programs in Application" on page 203 for details).
FROM	Converts DIM, DIW, and DIN matrices stored in the application into an ADRS II data file (see "Storing and Activating Applications in Shared File Storage" on page 206 for details).
GETCHAR	Creates an APL character matrix from selected columns of data file (see "Command Highlights" on page 252 for details).
GETDAT	Creates an APL character matrix from selected columns of data file (see "Command Highlights" on page 252 for details).
GETMAT	Creates an APL character matrix from selected columns of data file (see "Command Highlights" on page 252 for details).
GO	For display terminals without APL keyboards, this command is used to switch from desk calculator mode back to ADRS II conversational mode (see Appendix A for details).
HOLDPAGE	Used with hard-copy terminals to stop/start printing at end of each page during report generation (see "Printer Setup" on page 191 for details).
HOST	Allows execution of host-system commands (see "Invoking APL and Host System Expressions" on page 254 for details).

HUSH	Completely suppresses playout of system messages in EXPRESS mode (see "Operating in EXPRESS Mode" on page 194 for details).
IDLOCK	Protects/unprotects the data file from changes to existing records (see "Protecting Data File Using ADDLOCK and IDLOCK" on page 246 for details).
INPUT	Allows entry of data into selected columns of selected rows (see "Data Entry Using INPUT Command" on page 48 for details).
JOBNAME	Allows creation of job setups for FASTROW, INPUT, SHIP, AND PLOT (see "Defining a Guided Data-Entry Job Using JOBNAME" on page 57, "Storing, Loading, and Deleting Shared Files" on page 205, and "Setting Up and Generating Graphs and Bar Charts" on page 183 for details).
KEEP	Reduces amount of workspace storage required when)SAVE is subsequently executed (see "Saving an Application" on page 29 for details).
LIST	Used to generate one-time special reports (no stored setup) (see "Using LIST Command to Generate Simple Reports" on page 70 for details).
LOADFILE	Allows data to be extracted from external user-defined files (see "Extracting Data from External Files Using LOADFILE" on page 225 for details).
PLOT	Used to generate graphs and bar charts (see "Setting Up and Generating Graphs and Bar Charts" on page 183 for details).
PRINTER	Used to turn system printer on and off, and to select system printer (see "Printer Setup" on page 191 for details).
PRINTEROFF	Turns off system printer (see "Printer Setup" on page 191 for details).
PRINTERON	Turns on system printer (see "Printer Setup" on page 191 for details).
PROGRAM	USED TO STORE SETS OF COMPUTATION STATEMENTS (see "Basic-Level Computations" on page 93 for details).
PURGEFILE	Used to delete files from shared files storage (see "Storing, Loading, and Deleting Shared Files" on page 205 for details).
QUERY	Used to examine data file and stored setups in the application (see "Querying the Application" on page 62 for details).
QUIET	Allows partial suppression of playout of system messages in the EXPRESS mode (see "Operating in EXPRESS Mode" on page 194 for details).
READER	In VM/CMS systems, this command is used to store shipped data files in the private library (see "Consolidating Shared Files" on page 210 for details).

RESTART	To restart a report interruption, the command sets a switch and requests entry of either LIST or REPORTS. LIST will ask for a starting rowid. REPORTS (for hard-copy terminals only) asks for a starting page number.
ROWIDS	Used to insert or change rowids. Also used to list row numbers and rowids in the data file (see "Obtaining Lists of Row Numbers and/or Rowids for Data File" on page 69).
SALL	Selects all records in the file. Cancels any prior selections (see "Selection" on page 77 for details).
SELECT **or** **SEL**	Allows entry of selection statements for selecting records from the data file. (see "Selection" on page 77 for details).
SEPARATORS	Used to change data entry and express mode separators (see "Changing Data-Entry and EXPRESS Mode Separators" on page 247 for details).
SETCHAR	Loads APL character matrix into data file (see "Look-up Tables" on page 98 for details).
SETCON	Used to store the consolidation setup in the application for use by CONSOL command (see "Consolidating Shared Files" on page 210 for details).
SETDAT	Loads APL numeric matrix into data file (see "Look-up Tables" on page 98 for details).
SETDEC	Used to change decimal settings in report outputs (see "Setting Up Report Output Controls" on page 248 for details).
SETMIX	Allows/disallows entry of nonnumeric data into numeric columns (see "Setting Up the Data File Using the SETUP Command" on page 34 for details).
SETPAGE	Sets up page dimensions, date stamp, and page numbering for reports (see "Setting Up Report Output Controls" on page 248 for details).
SETREPORTS	Used to store report setups (see "Storing Report Setups Using SETREPORTS" on page 110, "Selecting and Using Print Options in Regular Reports" on page 126, "Using Variable Data in Text" on page 135, "Predefining Regular Reports with Control Breaks" on page 139, and "Setting Up Patterned Reports" on page 145 for details).
SETSPACE	Sets up line spacing for report outputs (see "Setting Up Report Output Controls" on page 248 for details).
SETSPECIAL	Sets up handling of numeric columns in report outputs (see "Setting Up Report Output Controls" on page 248 for details).
SETUP	Used to define column widths, decimal position, and headers for data file columns (see "Defining a New Application" on page 25, and "Setting Up the Data File Using the SETUP Command" on page 34 for details).
SHIP	Used to store in shared files selected columns of selected records (see "Storing, Loading, and Deleting

	Shared Files" on page 205 and "Consolidating Shared Files" on page 210 for details).
SORT **or** **SOR**	Used to sort the data file in ascending or descending order on one or more columns of the file (see "Sorting" on page 76 for details).
STORE	Used to store entire data file in shared files storage (see "Storing, Loading, and Deleting Shared Files" on page 205 for details).
SUMMARY	Used to summarize a data file prior to shipment for consolidation (see "Consolidating Shared Files" on page 210 for details).
TALK	Allows playout of system messages in the EXPRESS mode (see "Operating in EXPRESS Mode" on page 194 for details).
TERMINAL	Allows terminal setup to be changed in the application (see "Checking and Changing the Terminal Setup" on page 31 for details).
TO	Converts data file to DIM, DIW, and DIN matrices (see "Passing Data between APL-Based Applications" on page 236 for details).
WHICH	Allows the error-producing statement in a stored program to be identified (see "Basic-Level Computations" on page 93 for details).

ERROR RECOVERY

This section tells you how to respond to error conditions, and how to correct typed errors.

SUBJECTS COVERED

1. Error conditions
2. Correcting typed errors

GLOSSARY OF COMMANDS USED FOR ERROR RECOVERY

COMMAND	DESCRIPTION
CSTACK	Clears the state indicator after an interrupted command, or after a STACK FULL error message from the system.
DATACHECK	Used to check the data base for damage caused by interrupted commands. Automatically corrects correctable errors. You are informed if the data base checks OK, or if it should be replaced.
RESTART	Used to restart generation of a report that was interrupted by forms problems, etc. The command sets a switch and requests the entry of the interrupted report output command. You will then be asked to enter a starting rowid or a starting page number.
RESUME	Automatically restarts an interrupted operation if the underlying APL function is suspended. Not used in VSPC environments.

ERROR CONDITIONS

It is impossible to list all the probable error conditions you may encounter because of the combination of computer hardware, software, telecommunications environments, and human factors.

The more frequent conditions that will interrupt or interfere are listed in this part with suggested corrective actions. If you run into a situation, not covered here that is holding up your progress, don't delay -- contact your local ADRS II or computer specialist and ask for help.

ERROR CONDITION	**CORRECTIVE ACTION**
bad chars	Generally means a symbol or number other than the required alphabetic response was entered. Can also be the result of a spelling error. Reenter your response
bad format	Especially common in calculation and selection statements. You have probably forgotten to enter a character, entered an incorrect character, or entered a wrong response. Examine the entered statement, and reenter the corrected statement.
clear state indicator and retry	There has been some sort of interruption. Enter CSTACK, press the **E**, and resume your work
CMS	These letters mean you have gone out of ADRS II into the control program area of the computer. Go through the required steps to **)LOAD** your workspace again and then continue.
CP	Same as CMS above.
improper library reference	An attempt to reference someone else's workspace or a nonexistent workspace. It may also result from an incorrect spelling of a workspace name (or it may be that the workspace you want was not properly saved). Enter **)LIB** to check the names of your workspaces, and reenter the corrected workspace identification.
incorrect command	A command word has been misspelled, does not exist, or the) prefix has been incorrectly used. Refer to the glossary if necessary, and reenter the command.
interrupt	A result of intentional use of the ATTN or PA1 key, or unavoidable equipment malfunction. Reenter your response.
syntax error	You probably entered a command such as **DONE** and then attempted to continue work on you file without entering the **GO** command. Try again. (Or it may be that you used the shift key when you shouldn't have.)

value error	You have entered a character or word that is not known to adrs. Can also be the result of a spelling error or wrong use of the shift key. Try again.
workspace full	This is a serious problem that will require the help of your adrs or computer specialist
workspace (ws) not found	The workspace does not exist, or you may have misspelled the workspace name, or the workspace was not properly saved. Enter **)LIB** to check the names of your workspaces and reenter the corrected workspace identification.
16!31/.PK'9''?	Nonsense symbols are printed when a function has been interrupted by you or by equipment malfunction. Start over from the beginning of an adrs command
***************	A string of *'s printed on a total or subtotal row in a numeric column means the computed result is too wide to print in the column. Go back to **SETUP**. Alter the width of the column.
Spurious Interrupt	This condition is indicated when the name of the command you were executing appears, followed by a number (interrupted statement number). If the command being executed is for a report output, execute CSTACK, then execute RESTART. If the command being executed is not for a report output, but does not affect the data base, execute CSTACK, then execute RESUME. If the command being executed affects the data base, execute CSTACK, then execute RESUME, and assure that program execution resumes at the statement where it was interrupted.
Suspected damage to the data base	Execute CSTACK, then execute DATACHECK If data base checks ok, you can proceed. If data base contains uncorrectable errors, attempt to re-create the data file from back-up tapes or other sources.
No Shares: SVP is full	The shared storage manager is not active, and is required for proper system operation. Contact your system support personnel to restart the VSAPL, SVP.
Not Saved, Library is full	You have saved the allowable limit in your private library. Use)LIB command to check your library, and select an application that is no longer needed. Then, execute)DROP to delete the selected application.
SI Damage	If you used KEEP with functions suspended in the state indicator, this message appears at the

	next load of the application. Ignore the message, but execute CSTACK.
Space Not Available	Memory required to satisfy a)LOAD or)COPY request cannot be allotted. Reduce the size indication in the)LOAD or)COPU command.
Stack Full	Indicates that the memory area set aside for execution-time status information is full. Execute CSTACK. Then, enter APL System Command)SI to verify that the stack is completely cleared. Repeat execution of CSTACK until the stack is cleared.
Symbol Table Full	Indicates that size of symbol table (initialized to hold 2000 names) is full. Increase the size of the symbol table as follows: a. Save the workspace. b. Execute)CLEAR to clear the active workspace. c. Execute)SYMBOLS newsize, where newsize is the increased size of the symbol table d. Execute)STACK 1400 e. Execute)COPY command to copy the application saved in step a. f. Execute)WSID command to change the name of the application g. Execute SEED. Then, save the application under the new name. h. Load the application back into the active workspace and resume.
WS Too Large	Message occurs while loading a workspace to indicate that it was last saved with storage defined at a greater value than the setting entered when)LOAD was executed. Check to find the cause of the discrepancy.
Index Error	This can be an indication of a serious problem in your data base. Execute CSTACK, then execute DATACHECK to attempt to correct the problem.

Errors during ADRS II command execution

These error messages occur when executing an ADRS II command and you make an incorrect response to a prompt. The error messages inform you of the error. Simply re=enter your response to the prompt, when it is repeated.

CORRECTING TYPED ERRORS

There will be some errors that you will spot both before and after you press the E key. This is how to correct them.

spelling or spacing error BEFORE entry	On hard-copy (paper) terminals Backspace to the position of the error and press the ATTN key. The system will then erase all information to the right of that point on the line.

Reenter the corrected information and proceed.

On display (screen) terminals
Backspace and strike over the error
before entering the corrected information
into the system.

error AFTER entry

Before you can enter corrected or new information, make sure you've finished the activity you're doing, and then enter the appropriate command.

For example, to change a column heading, enter the **SETUP** command, to alter data, enter the **INPUT** command, and so on.

to stop and restart

If you want to stop processing in the middle of an activity such as setting up your file, simply press the E key several times. You will have to press the ATTN key if you're using a hard-copy terminal, or the appropriate PF key if you're using a display terminal. If all else fails, turn off the terminal and start over again from sign-on.

APPENDIX A. OVERALL JOB FLOW FOR SETTING UP AN APPLICATION

OVERALL JOB FLOW

This section explains the overall job flow for setting up and using an application. An overall job flow diagram Figure 74 is provided, together with job summary form Figure 75 on page 278 and worksheets. The job flow diagram, job summary form, and worksheets provide you with a complete system for defining a job (a set of related tasks being performed on an application during a single terminal session).

HIGHLIGHTS

- All tasks are shown on the job flow diagram Figure 74 down to the section level, with the exception of tasks associated with Report Setup and Generation. The section "Detailed Job Flow and Worksheets For Reports" on page 168 provides a detailed job flow diagram and worksheets for these tasks. All other worksheets are included in this section.
- Additional detailed flow diagrams are provided in the section "Detailed Job Flow and Worksheets For Reports" on page 168. These flow diagrams provide you with an overview of the tasks involved in data entry and report setup.
- Where applicable the sequence of entries on the worksheet follows the sequence in which the entries are made at the terminal in response to prompts.
- Where applicable, the worksheets contain space for entering a command/response string for use in the EXPRESS mode.

EXPLANATION OF OVERALL JOB FLOW DIAGRAM

- The job flow diagram (Figure 74) identifies all tasks with the exception of tasks associated with the setup and generation of reports (including graphs and bar charts). The section "Detailed Job Flow and Worksheets For Reports" on page 168 provides detailed job flow to the work package level for the setup and generation of reports.
- Each job flow diagram sheet shows the job flow for a major category of tasks, as follows:
  - Creating a new application, or loading an existing application into the active workspace (Figure 74 on page 273). Dropping an application from the public library. Changing the terminal setup or workspace ID of an application. Creating an introduction to an application.
  - Making all stored setups (other than those on sheet 1) in an application (Figure 74, part 2).
  - Bringing into the active workspace data from files located outside the active workspace, including shipping and consolidation of data files (Figure 74, part 3).

  - Performing data entry, data processing, and report generation operations on the data file in the active workspace (Figure 74, part 4).

  - Sending data from the active workspace to shared files or to another APL-based application (Figure 74, part 5). Storing an entire application in shared files. Deleting a file from shared files. Sign-off.

- Note that, on each job flow diagram of Figure 74, the tasks in (rectangular boxes) are identified by letter task codes (starting with letter A on each sheet).

- The job flow diagram (Figure 74 on page 273) is intended to be used as a job analysis form. For a particular job (related series of tasks performed on an application in the active workspace, during a single terminal session). You mark up a copy of the job flow diagram to indicate the actual tasks to be performed. The best way of accomplishing this step is to use a marker pen to mark in the actual flow-path that will be used to accomplish the job. Following the job flow diagram, is a job summary sheet. After marking the job flow diagram as just described, you enter the task letter codes of the tasks in the sequence that they are to be performed to accomplish the job. For each such letter code entered on the job summary sheet (Figure 75 on page 278), also enter a task description, the section(s) that contain procedural instructions for the task, and the worksheet (if any) used to prerecord the data and parameters that are to be entered during execution of the task at the terminal.

  Note: Use additional copies of the referenced job flow diagram sheets for these tasks. Mark up the job flow diagram, and provide additional job summary sheets, as required.

- The marked-up job flow diagram, and the completed job summary sheet and worksheets constitute a complete definition for a job.

- To assist you in using the job flow diagram (Figure 74) and the job summary sheet (Figure 75 on page 278), this section includes a complete listing of the tasks (see "Appendix A. List of Tasks in Overall Job Flow Diagram" on page 279) shown in the job flow diagram. For each listed task, the job flow diagram sheet number and task letter code are given, together with the applicable work packages and worksheets that are used for the task.

- To further assist you in defining jobs and in effectively utilizing this user's guide, this section includes a summary of typical job sequences (see the section "Appendix A. Summary of Typical Job Sequences" on page 282). This summary lists 18 basic job descriptions, encompassing virtually any operation that can be performed using ADRS II. For each job, an explanation is provided, with references to the applicable sections.

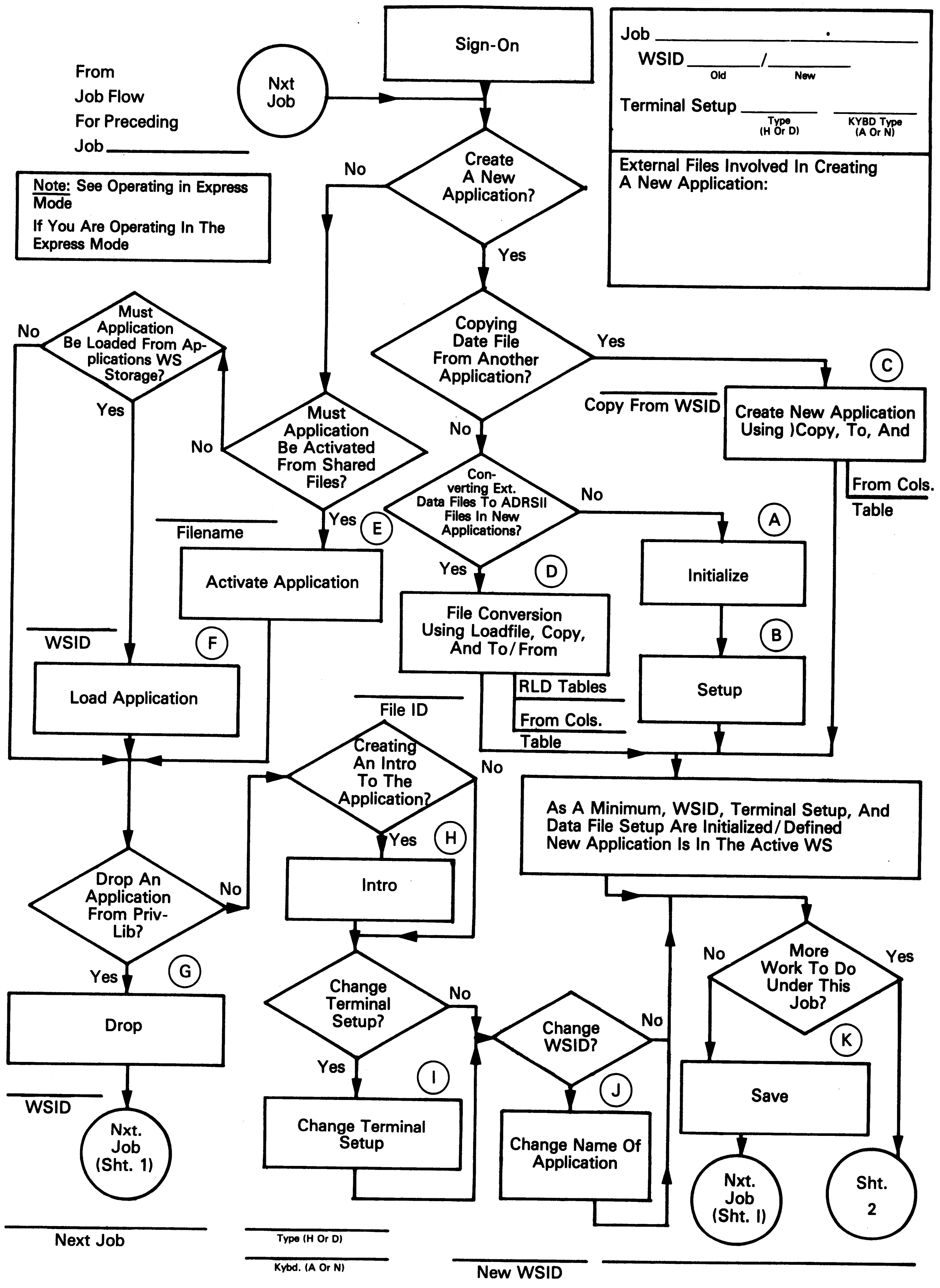

From Job Flow For Preceding Job
Nxt Job
Sign-On
Job
WSID
Old
New
Terminal Setup
Type (H Or D)
KYBD Type (A Or N)
External Files Involved In Creating A New Application:
Note: See Operating in Express Mode If You Are Operating In The Express Mode
Create A New Application?
No
Yes
Copying Date File From Another Application?
Yes
C
Copy From WSID
Create New Application Using)Copy, To, And
From Cols. Table
No
Must Application Be Loaded From Applications WS Storage?
No
Yes
Must Application Be Activated From Shared Files?
No
Yes
E
Filename
Activate Application
Converting Ext. Data Files To ADRSII Files In New Applications?
No
A
Initialize
Yes
D
File Conversion Using Loadfile, Copy, And To/From
RLD Tables
From Cols. Table
B
Setup
WSID
F
Load Application
File ID
Creating An Intro To The Application?
No
Yes
H
Intro
As A Minimum, WSID, Terminal Setup, And Data File Setup Are Initialized/Defined New Application Is In The Active WS
Drop An Application From Priv-Lib?
No
Yes
G
Drop
WSID
Nxt. Job (Sht. 1)
Change Terminal Setup?
No
Yes
I
Change Terminal Setup
Change WSID?
No
J
Change Name Of Application
More Work To Do Under This Job?
No
Yes
K
Save
Nxt. Job (Sht. I)
Sht. 2
Next Job
Type (H Or D)
Kybd. (A Or N)
New WSID

Figure 74 (Part 1 of 5). Job Flow Diagram for Application Setup

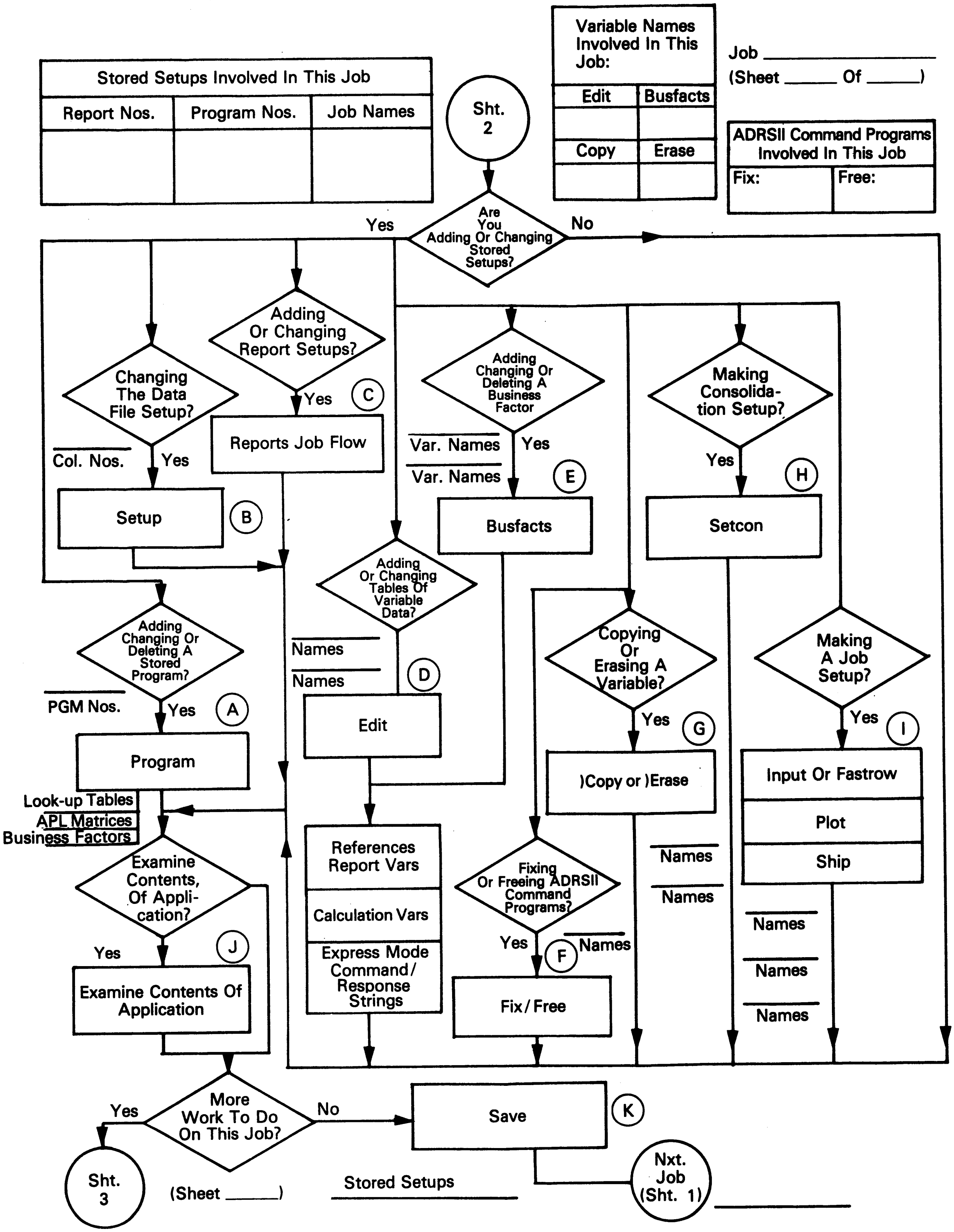

Stored Setups Involved In This Job
Report Nos.
Program Nos.
Job Names
Variable Names Involved In This Job:
Edit
Busfacts
Copy
Erase
Job
(Sheet Of)
ADRSII Command Programs Involved In This Job
Fix:
Free:
Sht. 2
Are You Adding Or Changing Stored Setups?
Yes
No
Changing The Data File Setup?
Adding Or Changing Report Setups?
Yes
C
Reports Job Flow
Col. Nos.
Yes
Setup
B
Adding Changing Or Deleting A Business Factor
Var. Names
Yes
Var. Names
E
Busfacts
Making Consolidation Setup?
Yes
H
Setcon
Adding Or Changing Tables Of Variable Data?
Names
Names
D
Edit
Adding Changing Or Deleting A Stored Program?
PGM Nos.
Yes
A
Program
Look-up Tables
APL Matrices
Business Factors
Copying Or Erasing A Variable?
Yes
G
)Copy or)Erase
Making A Job Setup?
Yes
I
Input Or Fastrow
Plot
Ship
References Report Vars
Calculation Vars
Express Mode Command/Response Strings
Fixing Or Freeing ADRSII Command Programs?
Yes
F
Names
Fix/Free
Names
Names
Names
Names
Names
Examine Contents, Of Application?
Yes
J
Examine Contents Of Application
More Work To Do On This Job?
Yes
No
Save
K
Sht. 3
(Sheet)
Stored Setups
Nxt. Job (Sht. 1)

Figure 74 (Part 2 of 5). Job Flow Diagram for Application Setup

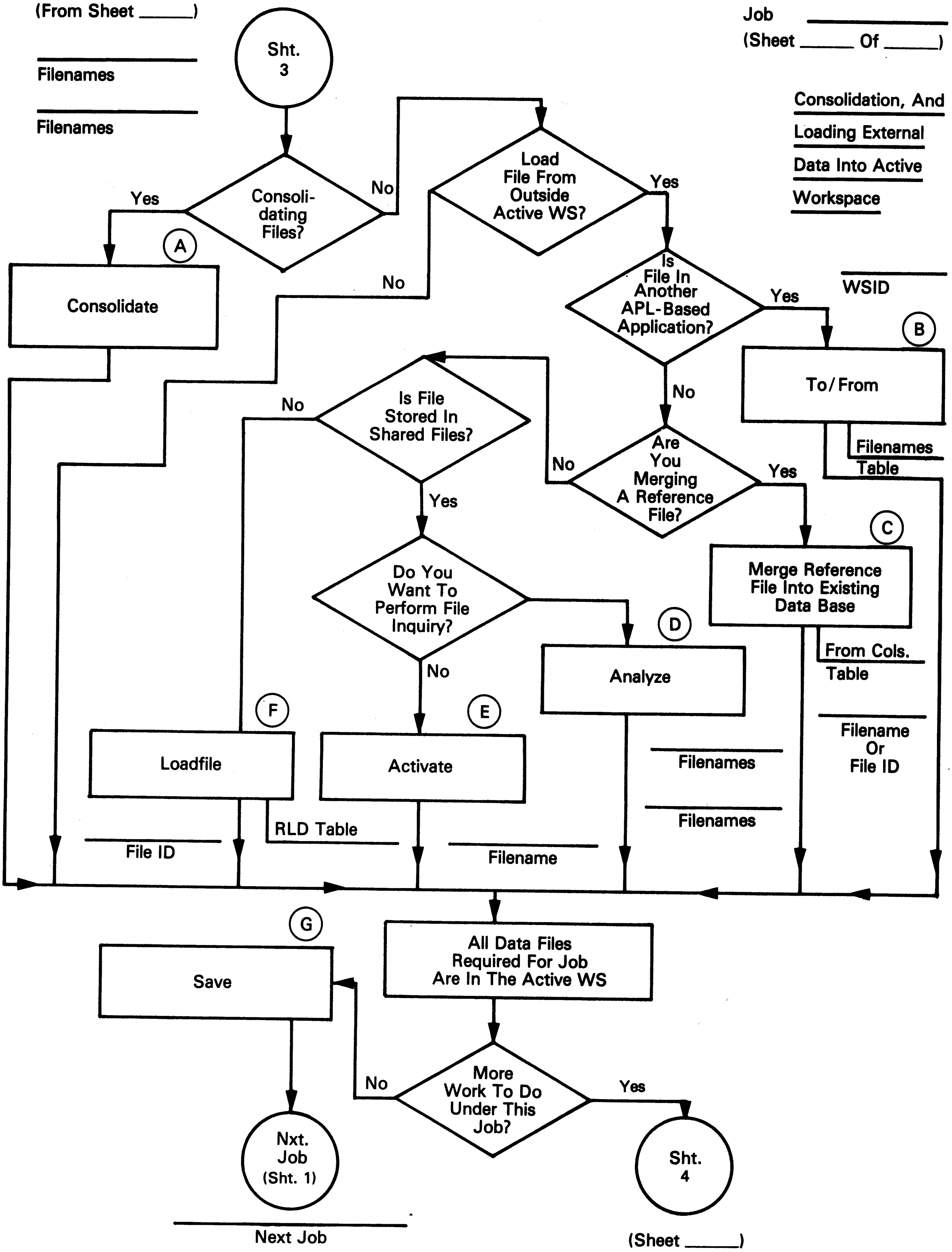

(From Sheet ____)
Filenames
Filenames
Sht. 3
Job
(Sheet ____ Of ____)
Consolidation, And
Loading External
Data Into Active
Workspace
Consolidating Files?
Yes
No
A
Consolidate
Load File From Outside Active WS?
Yes
No
Is File In Another APL-Based Application?
Yes
No
WSID
B
To/From
Filenames Table
Are You Merging A Reference File?
No
Yes
C
Merge Reference File Into Existing Data Base
From Cols. Table
Filename Or File ID
Is File Stored In Shared Files?
No
Yes
Do You Want To Perform File Inquiry?
No
D
Analyze
Filenames
Filenames
F
Loadfile
E
Activate
RLD Table
File ID
Filename
G
Save
All Data Files Required For Job Are In The Active WS
More Work To Do Under This Job?
No
Yes
Nxt. Job (Sht. 1)
Next Job
Sht. 4
(Sheet ____)

Figure 74 (Part 3 of 5). Job Flow Diagram for Application Setup

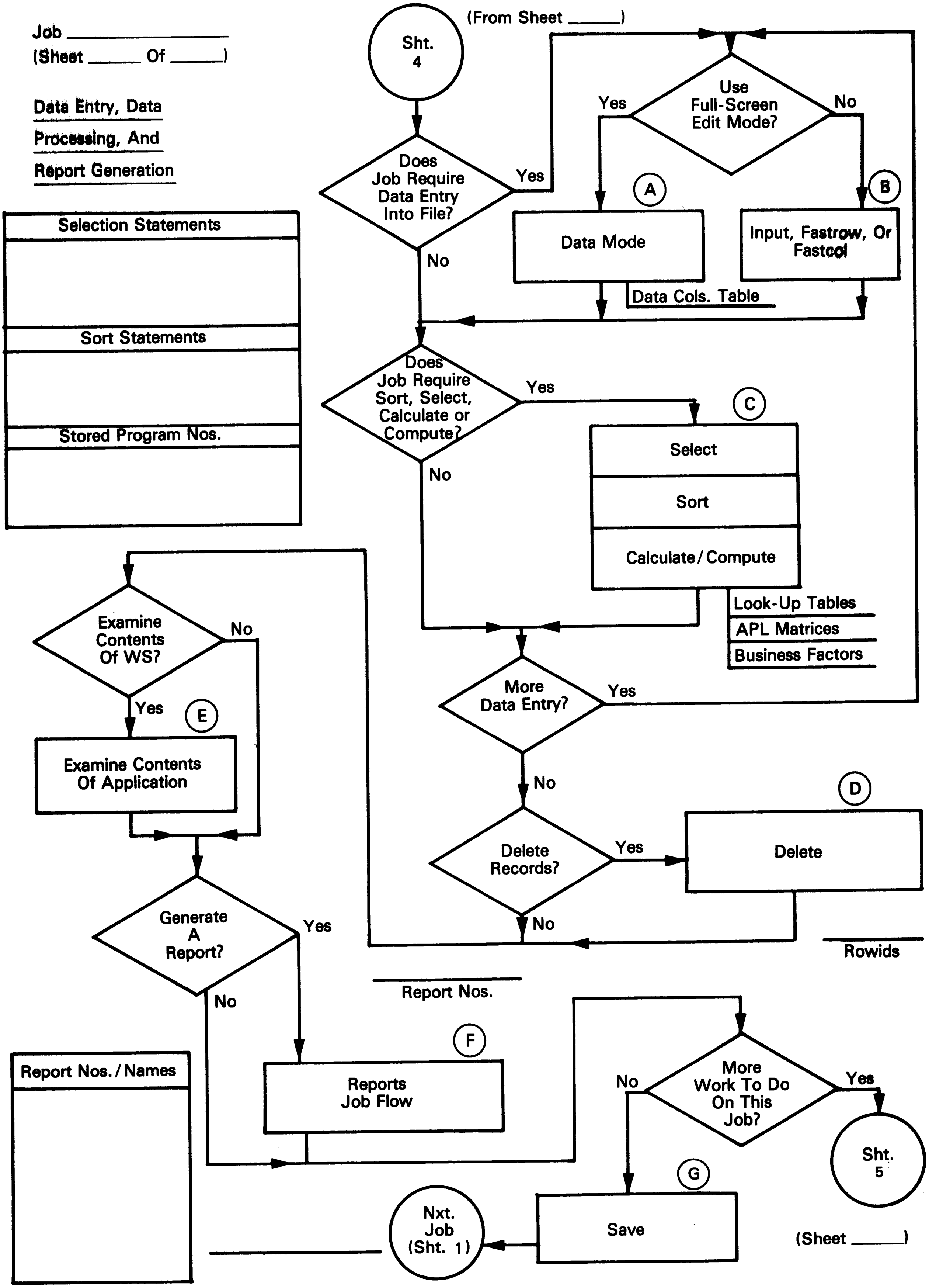

Job
(Sheet Of)
Data Entry, Data Processing, And Report Generation
Selection Statements
Sort Statements
Stored Program Nos.
(From Sheet)
Sht. 4
Does Job Require Data Entry Into File?
Yes
No
Use Full-Screen Edit Mode?
Yes
No
A
B
Data Mode
Input, Fastrow, Or Fastcol
Data Cols. Table
Does Job Require Sort, Select, Calculate or Compute?
Yes
No
C
Select
Sort
Calculate/Compute
Look-Up Tables
APL Matrices
Business Factors
More Data Entry?
Yes
No
Delete Records?
Yes
No
D
Delete
Rowids
Examine Contents Of WS?
No
Yes
E
Examine Contents Of Application
Generate A Report?
Yes
No
Report Nos.
F
Reports Job Flow
Report Nos./Names
More Work To Do On This Job?
No
Yes
Sht. 5
G
Save
Nxt. Job (Sht. 1)
(Sheet)

Figure 74 (Part 4 of 5). Job Flow Diagram for Application Setup

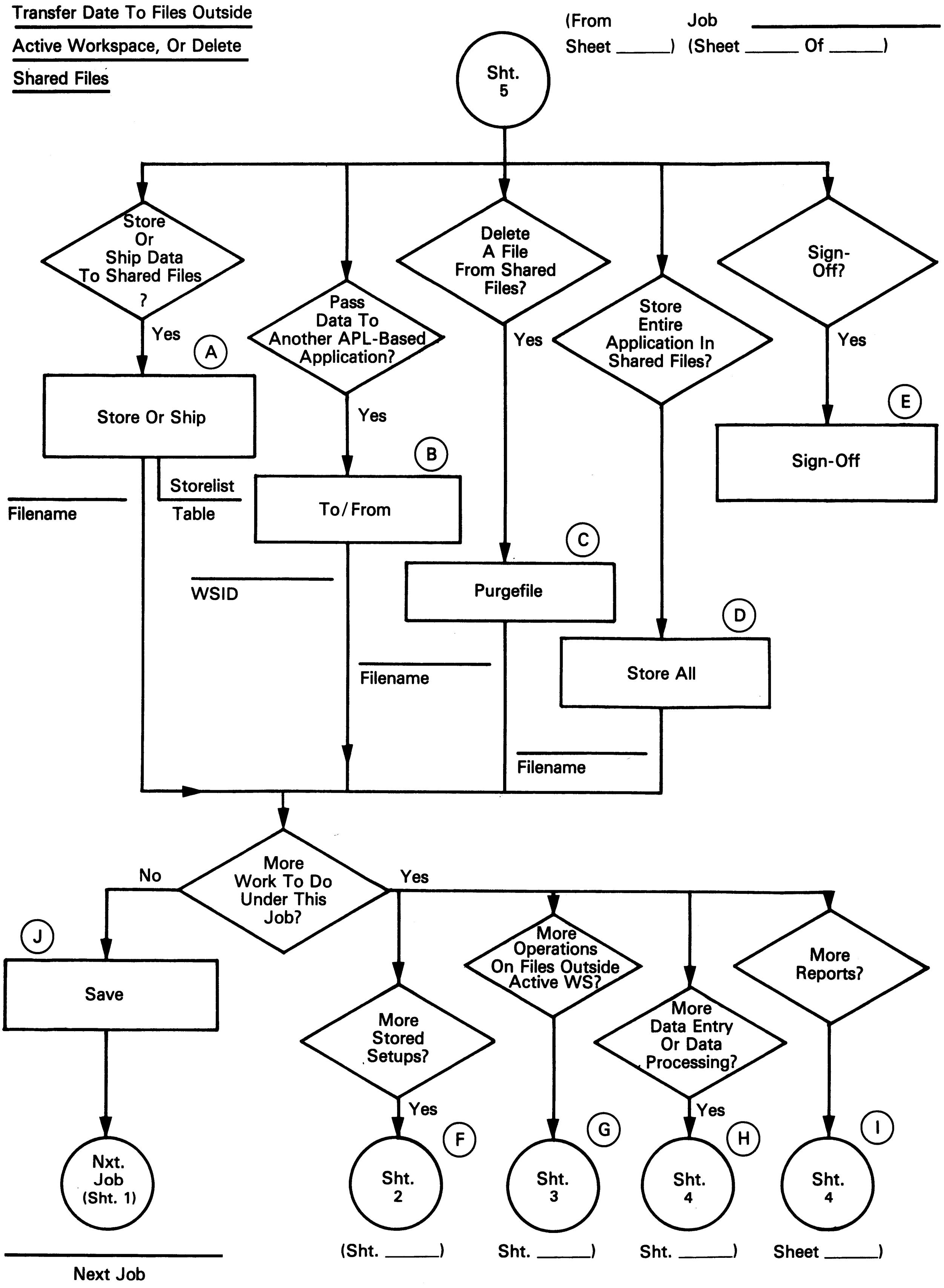

Transfer Date To Files Outside
Active Workspace, Or Delete
Shared Files
(From Sheet ____) Job ____ (Sheet ____ Of ____)
Sht. 5
Store Or Ship Data To Shared Files ?
Yes
A
Store Or Ship
Storelist Table
Filename
Pass Data To Another APL-Based Application?
Yes
B
To/From
WSID
Delete A File From Shared Files?
Yes
C
Purgefile
Filename
Store Entire Application In Shared Files?
D
Store All
Filename
Sign-Off?
Yes
E
Sign-Off
More Work To Do Under This Job?
No
Yes
J
Save
Nxt. Job (Sht. 1)
Next Job
More Stored Setups?
Yes
F
Sht. 2
(Sht. ____)
More Operations On Files Outside Active WS?
G
Sht. 3
Sht. ____)
More Data Entry Or Data Processing?
Yes
H
Sht. 4
Sht. ____)
More Reports?
I
Sht. 4
Sheet ____)

Figure 74 (Part 5 of 5). Job Flow Diagram for Application Setup

JOB ____________________

	LIST TASKS IN SEQUENCE THEY ARE TO BE PERFORMED DURING TERMINAL SESSION				
JOB FLOW DIAGRAM SHT. NO.	TASK CODE LETTER	TASK DESCRIPTION	REFERENCE SECTIONS	REFERENCE WORKSHEETS	REMARKS, FILENAMES VARIABLE NAMES, REPORT/PROGRAM NO.s, ETC.
NEXT J	B:				

Figure 75. Job Summary Sheet

LIST OF TASKS IN OVERALL JOB FLOW DIAGRAM

The following task code letters are shown on Figure 74, part 1:

TASK CODE LETTER	TASK DESCRIPTION
A	Initialize setup for new application (see Figure 77 on page 302 and the section "Defining a New Application" on page 25).
B	Initial data-file setup for new application (see Figure 81 on page 306 and the section "Setting Up the Data File Using the SETUP Command" on page 34).
C	Create new application using)COPY, TO, and FROM commands (see Figure 77 on page 302 and the section "Passing Data between APL-Based Applications" on page 236).
D	During changeover to ADRS II, convert existing files to ADRS II-compatible files using LOADFILE, and store these files in new applications, using)COPY, TO, and FROM (see Figure 77 on page 302 and the section "Extracting Data from External Files Using LOADFILE" on page 225).
E	Activate an application stored in shared files (see Figure 77 on page 302 and the section "Storing and Activating Applications in Shared File Storage" on page 206).
F	Load application into active workspace (see the section "Loading an Application into the Active Workspace" on page 31).
G	Drop an application from private library (see the section "Dropping an Application from Your Private Library" on page 33).
H	Create an introduction to an application (see Figure 79 on page 304 and the section "Creating Introduction to Application" on page 101).
I	Change the terminal setup used with the application (see Figure 77 on page 302 and the section "Checking and Changing the Terminal Setup" on page 31).
J	Change the name of an application (see Figure 77 on page 302 and the section "Changing the Name of an Application" on page 32).
K	Save the application (see the section "Saving an Application" on page 29).

The following task code letters are shown on Figure 74, part 2:

TASK CODE LETTER	TASK DESCRIPTION
A	Add/change/delete a stored program (see Figure 83 on page 308 and the sections "Loading an Application into the Active Workspace" on page 31, "Changing the Name of an Application" on page 32, and "Dropping an Application from Your Private Library" on page 33.
B	Change the data file setup (see Figure 81 on page 306 and the section "Sign-on and Sign-off" on page 25).

C	Add/change report setup (see Figure 74 on page 273 and the section "Dropping an Application from Your Private Library" on page 33).
D	Add/change tables of variable data (see Figure 79 on page 304 and the sections "Sign-on and Sign-off" on page 25, "Using Variable Data in Text" on page 135, "Using Variable Data in File Processing" on page 96, and "Operating in EXPRESS Mode" on page 194).
E	Add/change/delete a business factor (see Figure 80 on page 305 and the sections "Using the BUSFACTS Command to Create Business Factors" on page 106, "Using Variable Data in Text" on page 135, and "Detailed Job Flow and Worksheets For Reports" on page 168).
F	Fixing/freeing ADRS command programs in the application (see Figure 77 on page 302 and the section "Fixing and Freeing ADRS II Command Programs in Application" on page 203).
G	Copy or erase a variable created by EDIT, GETMAT, GETCHAR, GETDAT)COPY, or TO command (see the section "Using)COPY and)ERASE Commands with Variables" on page 33).
H	Make consolidation setup, using SETCON (see Figure 85 on page 310 and the section "Consolidating Shared Files" on page 210).
I	Make job setup, using JOBNAME: • INPUT or FASTROW (see Figure 82 on page 307 and the sections "Data Entry Using INPUT Command" on page 48, "Data Entry Using FASTROW" on page 51, and "Data Entry Using FASTCOL" on page 54.) • SHIP (see Figure 84 on page 309 and the section "Storing, Loading, and Deleting Shared Files" on page 205) • PLOT (see Figure 56 on page 182 and the section "Setting Up and Generating Graphs and Bar Charts" on page 183)
J	Examine contents of the application in the active workspace (see Figure 78 on page 303 and the section "Querying the Application" on page 62).
K	Save the application (see the section "Saving an Application" on page 29).

The following task code letters are shown on Figure 74, part 3:

TASK CODE LETTER	TASK DESCRIPTION
A	Consolidate files (ship and/or consolidate) (see Figure 85 on page 310 and the section "Consolidating Shared Files" on page 210).
B	Receive data file from another APL-based application, using)COPY, TO, and FROM (see Figure 77 on page 302 and the section "Passing Data between APL-Based Applications" on page 236).
C	Merge a reference file into existing data base (see the section "Extracting and Merging Data from Reference Files" on page 242).
D	Multifile inquiry on shared files, using ANALYZE command (see Figure 84 on page 309 and the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240).

E	Activate a data file in shared files storage (see Figure 84 on page 309 and the section "Storing, Loading, and Deleting Shared Files" on page 205).
F	Load an external user-defined file (see Figure 86 on page 311 and the section "Extracting Data from External Files Using LOADFILE" on page 225).
G	Save the application (see the section "Saving an Application" on page 29).

The following task code letters are shown on Figure 74, part 4:

TASK CODE LETTER	TASK DESCRIPTION
A	Data entry/edit in full-screen edit mode (see the section "Using Data and Scroll Modes with Full-Screen Edit" on page 42).
B	Data entry edit without using full-screen edit mode (see Figure 82 on page 307).
C	SORT, SELECT, CALCULATE, or COMPUTE operations on data file (see Figure 83 on page 308): • SELECT (see the section "Selection" on page 77). • SORT (see the section "Sorting" on page 76). • CALCULATE or COMPUTE (see the sections "Basic-Level Computations" on page 93, "Using Variable Data in File Processing" on page 96, and "Chapter 6. Dealing with APL Character Data" on page 252).
D	Delete records selectively from data file • In full-screen edit mode (see the section "Using Data and Scroll Modes with Full-Screen Edit" on page 42). • Not in full-screen edit mode (see the section "Selectively Deleting Records from File" on page 83 and Figure 82 on page 307).
E	Examine contents of the application in the active workspace (see Figure 78 on page 303 and the section "Querying the Application" on page 62).
F	Generate a report (see the section "Detailed Job Flow and Worksheets For Reports" on page 168).
G	Save the application (see the section "Saving an Application" on page 29).

The following task code letters are shown on Figure 74, part 5:

TASK CODE LETTER	TASK DESCRIPTION
A	Store or ship data file to shared files storage (see Figure 84 on page 309 and the section "Storing, Loading, and Deleting Shared Files" on page 205).

B Pass data to another APL-based application (see Figure 77 on page 302 and the section "Passing Data between APL-Based Applications" on page 236).

C Delete a file from shared files storage (see Figure 84 on page 309 and the section "Storing, Loading, and Deleting Shared Files" on page 205).

D Store an entire application in shared files storage (see Figure 77 on page 302 and the section "Storing and Activating Applications in Shared File Storage" on page 206).

E Sign-off (see the section "Sign-on and Sign-off" on page 25).

F More stored setups (see Figure 74 on page 274).

G More operations on files outside the active workspace (see Figure 74 on page 275).

H More data entry or data processing (see Figure 74 on page 276).

I More reports to be generated (see Figure 74 on page 276).

J Save the application (see "Saving an Application" on page 29).

SUMMARY OF TYPICAL JOB SEQUENCES

1. **Create a new application.**

   Refer to the job flow diagram (Figure 74). The objective is to:

   a. Load a fresh copy of ADRS II into the active workspace to provide the system code for the new application.

   b. Assign a name (wsid) to the new application.

   c. Store in the new application the setup for your terminal (hard-copy or display, display dimensions, type of keyboard, etc.)

   d. Initialize the data file setup by at least defining column 0.

   The sequence above is normally accomplished by performing the procedures given in the section "Defining a New Application" on page 25, followed by the procedures the section "Setting Up the Data File Using the SETUP Command" on page 34. Alternative methods (in which the data file from another application or from an external file is loaded into the new application to simultaneously create both the data file setup and the data file) are described in the sections "Extracting Data from External Files Using LOADFILE" on page 225, and "Passing Data between APL-Based Applications" on page 236.

2. **Create an introduction to an application.**

   This job creates a text introduction to an application. Each time the application is loaded into the active workspace, the introduction is printed or displayed. The introduction is created in a table, whose name is INTRO (see the sections "Creating Introduction to Application" on page 101 and "General-Purpose Editing, Using the Edit Command" on page 102 for details).

3. **Load an existing application into the active workspace.**

If the application is stored in workspace storage, refer to the section "Loading an Application into the Active Workspace" on page 31.

If the application is stored in shared files, refer to the section "Storing and Activating Applications in Shared File Storage" on page 206.

4. **Create or change stored setups in the application.**

   See job flow diagram (Figure 74, part 2). Stored setups are created in the application or changed using, as appropriate, the commands:

   -)COPY (see the section "Using)COPY and)ERASE Commands with Variables" on page 33).
   - SETUP (see the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240).
   - SETREPORTS (see the section "Storing Report Setups Using SETREPORTS" on page 110).
   - PROGRAM (see the section "Basic-Level Computations" on page 93).
   - JOBNAME (see the sections "Defining a Guided Data-Entry Job Using JOBNAME" on page 57, "Storing, Loading, and Deleting Shared Files" on page 205, "Setting Up and Generating Graphs and Bar Charts" on page 183).
   - SETCON (see the section "Consolidating Shared Files" on page 210).
   - FIX (see the section "Fixing and Freeing ADRS II Command Programs in Application" on page 203).
   - BUSFACTS (see the section "Using the BUSFACTS Command to Create Business Factors" on page 106).
   - EDIT (see the section "General-Purpose Editing, Using the Edit Command" on page 102).

5. **Examine contents of application.**

   See the sections "Querying the Application" on page 62, "Examining User-Defined and System-Defined Variables" on page 257, and "Using the FILL Command to Determine Workspace and Data File Size" on page 202 for details. These sections tells you how to examine any stored setup in the application, including system-defined and user-defined variables. It also tells you to examine the data file.

6. **Ship a data file for consolidation.**

   See the sections "Storing, Loading, and Deleting Shared Files" on page 205, and "Consolidating Shared Files" on page 210 for details. The SHIP setup can be predefined using the JOBNAME command. The data file may be summarized before being shipped. Execution of SHIP causes selected data from the data file in the active workspace to be shipped to the shared files section of the consolidator's private library.

7. **Consolidate files.**

   One or more files stored in the consolidator's private library of shared files are consolidated into a single file in the active workspace, and summary data is added for each category of detail defined by the rowids in the files being consolidated. (See the section "Consolidating Shared Files" on page 210; see also 6 above.)

8. **Bring into the active workspace a data file that is stored outside the workspace.**

   The external data file may be in shared files, another APL-based application, or some other external file location accessible to the user. Any of the following can be accomplished:

   - Consolidation (see 7 above).

   - Create a file containing selected columns of selected records within one or more shared files (see the section "Multifile Inquiry on Shared Files, Using ANALYZE" on page 240 for details, using the ANALYZE command).

   - Load a complete file from shared files into the active workspace for data entry, data inquiry, data processing, or report generation (see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details, using the ACTIVATE command).

   - Copy a file from another APL-based application (see the section "Passing Data between APL-Based Applications" on page 236 for details, using the)COPY, TO, and FROM commands).

   - Convert an external user-defined data file into an ADRS II data file, and load selected columns from selected records in the converted file into the active workspace, or into one or more shared files. When the external file is loaded into the active workspace, it can replace the existing data file in the application, or it can be merged or intersected with the existing file (see the section "Extracting Data from External Files Using LOADFILE" on page 225 for details, using the LOADFILE command).

   - Match/Merge selected columns from a reference file into the the data base stored in the active workspace (see the section "Extracting and Merging Data from Reference Files" on page 242 for details).

9. **Change the data file setup.**

   See the section "Setting Up the Data File Using the SETUP Command" on page 34 for details, using the SETUP, FILL, and SETMIX commands. Allows you to add new columns, change columns width, decimal positions, and headers on existing columns, control entry of nonnumeric data into numeric columns, and create sequentially numbered rowids.

10. **Create new records, and update/edit existing records in the data file stored in the active workspace.**

   See the sections "Data Entry Using INPUT Command" on page 48, "Data Entry Using FASTROW" on page 51, "Defining a Guided Data-Entry Job Using JOBNAME" on page 57 and for details. Guided data entry job setups can be stored in the application, using the JOBNAME command. Commands used to accomplish data entry are DATA (and its associated subcommands) INPUT, FASTROW, and FASTCOL. Information is also provided for changing the entry and express mode separators (see the section "Changing Data-Entry and EXPRESS Mode Separators" on page 247), protecting and unprotecting the data file (see the section "Protecting Data File Using ADDLOCK and IDLOCK" on page 246), and inserting/changing rowids (see the section "Inserting and Changing ROWIDS" on page 69).

11. **Delete selected records from the data file stored in the active workspace.**

    See the sections "Selectively Deleting Records from File" on page 83 and "Using Data and Scroll Modes with Full-Screen Edit" on page 42 for details. Using the SELECT and ERASEROWS commands, records can be deleted based on any valid selection criteria.

12. **Perform data processing operations on the data file stored in the active workspace.**

    Data processing operations include operations such as selection (see "Passing Data between APL-Based Applications" on page 236), sorting (see "Sorting" on page 76), and calculation (see "Basic-Level Computations" on page 93, "Using Variable Data in File Processing" on page 96, and "Chapter 6. Dealing with APL Character Data" on page 252). For selection and sorting operations, stored programs (see 4 above) can be executed, using the COMPUTE command.

13. **Generate a report derived from the data file in the active workspace.**

    See the section "Detailed Job Flow and Worksheets For Reports" on page 168 for details. Types of reports include:

    - One-time special reports (no stored setup) generated using the LIST command (see the section "Using LIST Command to Generate Simple Reports" on page 70).

    - Reports whose format and content are determined by a setup stored under the SETREPORTS command, as described in 4 above (see the section "Generating Predefined Reports Using REPORTS Command" on page 167 for details, using the REPORTS command.

    - Graph or bar chart (see the section "Setting Up and Generating Graphs and Bar Charts" on page 183 for details, using the PLOT command). The setup for the graph or bar chart can be stored in the application using the JOBNAME commnad (see the section "Setting Up and Generating Graphs and Bar Charts" on page 183 for details).

14. **Transfer the data file in the active workspace to an external file location.**

    The file can be stored in shared files (see the section "Storing, Loading, and Deleting Shared Files" on page 205 for details, using the STORE or SHIP command), or in another APL-based application (see the section "Passing Data between APL-Based Applications" on page 236 for details, using the)COPY, TO, and FROM commands).

15. **Delete a file from shared files storage in your private library.**

    See the section "Storing, Loading, and Deleting Shared Files" on page 205 for details, using the PURGEFILE command.

16. **Store an entire application in shared files storage.**

    See the section "Storing and Activating Applications in Shared File Storage" on page 206 for details, using the ALL option of the STORE command.

17. **Operate in the EXPRESS mode.**

See the section "Operating in EXPRESS Mode" on page 194 for details. You can use the EXPRESS mode to perform any of the jobs (1 through 16) listed in this summary. Completely eliminates or reduces system prompts during command execution, thereby speeding up the execution of commands. Particularly valuable for experienced users when off-line preparation for the terminal session has been accomplished, using the worksheets. Allows you to type in command/response strings for one or more commands. Generalized command/response strings are provided in the section "Operating in EXPRESS Mode" on page 194 for many jobs. You can also store command/response strings in a table within the application, using the EDIT command. The stored command/response string is invoked in EXPRESS mode by typing in the name of the table.

18. **Error Recovery**.

    See the section "Error Recovery" on page 265 for details. Provides you with guidelines and general procedures for recovering from an error condition that occurs while performing any of the jobs listed in this summary.

1. Alphabetical characters of system messages are displayed or printed as follows:
   - Uppercase on APL and hard-copy terminals
   - Lowercase on non-APL display terminals
2. Alphabetical characters of APL system commands are typed/displayed/printed as follows:
   - On APL and hard-copy terminals, they are typed lowercase and are printed/displayed in uppercase.
   - On non-APL display terminals, they are typed uppercase and are printed/displayed in uppercase.
3. Alphabetical characters of ADRS II commands are typed/displayed/printed as follows:
   - On APL and hard-copy terminals, they are typed lowercase and are printed/displayed in uppercase.
   - On non-APL display terminals, they are typed and printed/displayed in lowercase.

TERMINAL TRANSLATE TABLES

ADRS II provides a high degree of application independence by allowing an application to be processed from a variety of different terminal types (see "Checking and Changing the Terminal Setup" on page 31 for changing the terminal setup). To allow this adaption to different terminal types, the system stores all application-related data in APL format, and utilizes translate tables to adjust for the differences between APL and non-APL character sets.

One byproduct of this application independence is the ability for users of APL terminals to include special characters such as the dollar sign and the percent sign in report outputs printed on either the system printer or the local printer.

The following is the translation between non-APL and APL character sets.

NON-APL	APL
\$	Not Equal
%	Divide
¢	Open Shoe
&	And
@	Alpha
#	Delta
"	Dieresis
a-z	A-Z
A-Z	$\underline{A}$-$\underline{Z}$

All other characters are common to both APL and non-APL character sets, and are translated directly. These include 0-9, less than, =, greater than, +-.:;,?|) (/_*'

APPENDIX C. ADRS II REPORT AND GRAPH SPECIFICATIONS

1. DEFINITION. A regular report is defined as one in which selected columns of selected records within the data file are listed in the sequence in which they have been sorted. The column numbers included in the report, and their left-to-right sequence, can be specified.

2. FORMAT ELEMENTS. The following format elements can be contained within a regular report that is set up using the SETREPORTS command:

   a. Separate Title Section. Title may be copied or borrowed from another report, or may be created by typed entries. Title may have more than one line, and can be positioned and underlined as desired.

   b. Formal Headers. If a separate title section is not required, formal headers can contain a report title as described in a above. The formal headers can also include header titles above groups of related columns, positioned and underlined as desired. Formal headers can also include the data file column headers, which may be edited. Formal headers can be borrowed/copied from other reports, or may be created by typed entries.

   c. Column Headers. If formal headers are not used, the column headers from the data file setup can be used without change.

   d. Body of the Report. The body of the report contains the selected columns of the selected rows. When presorting has grouped the records so that records having identical data in certain columns are all grouped together, control breaks can be defined within the body of the report. One or more control break levels can be defined. Above each grouping of records, a group indication title can be produced that includes the information in the data file column that was used to group the records. Group indications can be copied, borrowed, or created by typed entries. Below each such control break grouping, a total row can be produced containing the arithmetic sum of the values in selected numeric columns of the control break record group. The total row can also contain the results of special computations performed at each control break. Footnotes can be produced below the total row for each control break.

   e. Footnotes at the bottom of each page. Footnotes can be borrowed or created by typed entries. If footnotes are not used, a page number and data stamp can appear at the bottom of such page.

   f. Grand Total. If desired, a grand total row is produced containing totals for selected numeric columns.

   g. Page breaks can be produced at page overflow, or at the end of each specified control break level.

3. VARIABLE DATA. Variable data can be included in titles, formal headers, group indications, and footnotes. The variable data appear within the text of these elements is specified by enclosing the variable name with question marks. The variable data may be a business factor (defined by BUSFACTS command), indexed data from a table set up by the EDIT command, data from a selected column of the data file, or data from selected columns of a related file (see item 17 of "ADRS II Data File Specifications" on page 20).

4. PAGE DIMENSIONS. Lines per page, line width (number of characters), and top and bottom margins are specified by the SETPAGE command. Automatic page numbering and date stamp can also be specified by SETPAGE. Line spacing is specified by the SETSPACE command. For reports where the width exceeds the print width, the report is folded. The fold point can be specified at any desired character position.

5. HANDLING OF NUMERIC COLUMNS. The following special handling features can be used in report generation:

   a. Change the decimal position from setting in the format setup. The decimal position can be changed in specified columns of specified rows, using the SETDEC command.

   b. Zero entries. The symbolic representation (up to 6 characters) of a zero entry can be specified, using the SETSPECIAL command.

   c. Negative numbers. Parentheses enclosing negative numbers can be specified, using the SETSPECIAL command.

   d. Commas in numbers greater than 999. Commas can be inserted to indicate thousands for numbers greater than 999, using the SETSPECIAL command.

ADRS II Patterned Report Specifications

1. DEFINITION. A patterned report is one in which the content of the body of the report is specified on a line-by-line basis, using the SETREPORTS command. Column numbers, and their left-to-right sequence of appearance, are specified, and can be changed at any point within the body of the report to create a multitiered effect.

2. FORMAT ELEMENTS. The following format elements can be contained within a patterned report:

   a. Separate Title Section. Same as regular report, except title can appear in any location within the report.

   b. Formal Headers. Same as regular report, except the headers can appear at any location within the report.

   c. Column Headers. Same as regular report, except that currently selected headers can appear at any location within the report.

   d. Body of Report. The information (text or data rows), and any required totalizing to be contained in the body of the report are specified on a line-by-line basis.

   e. Footnotes. Same as regular reports, except that variable data can be specified in any line of the report.

3. VARIABLE DATA. Same as regular reports, except that variable data can be specified in any line of the report.

4. PAGE DIMENSIONS. Same as regular reports.

5. HANDLING OF NUMERIC COLUMNS. Same as regular reports.

6. FOLDED PATTERNS. The folded pattern option of patterned reports creates a repeating pattern of lines of text or data. The folded pattern is useful in generating mailing labels and similar operations. All columns specified in the folded pattern must have the same width.

7. SPLIT TEXT. Split text (lead-in text separated by dots, dashes or some other symbol from the remainder of the text) can be generated in the body of the report.

ADRS II Graph and Bar Chart Specifications

1. DEFINITIONS. Graphs and bar charts are set up and generated using the PLOT command. The magnitude of values in selected columns of selected rows from the data file is plotted by means of plotting symbols. For graphs, a single plotting symbol is used to indicate the magnitude of each value being plotted. For bar charts, a vertical column of plotting symbols indicates the magnitude of each value being plotted.

2. FORMAT ELEMENTS.

   a. Y Axis indicates magnitude, starting (at the origin) with any desired value.

   b. Row Descriptors. An alphameric column is selected during setup whose entries are used as the descriptors for the selected rows.

   c. Column Descriptors. Column headers of the selected columns are used as column descriptors.

   d. Plotting Symbols. A separate letter symbol is used to plot the values for each selected column of the selected rows, or to plot the values for each selected row in selected column.

   e. X-Axis Symbols. Sequential number symbols (starting with the number 1 at the X axis origin) are used to label the X-axis grid lines.

   f. Legend. Correlates letter (plotting) and number (X axis) symbols with the row and column descriptors. Legend for graphs also contains a table of the values that were plotted.

   g. Title. A multiline title for the graph or bar chart can be entered. Variable data can be included in the title.

   h. X-Y Axis Titles. Separate multiline titles can be entered for the X and Y axes.

3. STORED SETUP USING JOBNAME COMMAND. JOBNAME command can be used to store in the application the setup details of graphs and bar charts.

APPENDIX D. MORE ABOUT ADRS II WORKSPACES AND FILES

HIGHLIGHTS

- The ADRS II program is stored in a public library. The ADRS II system code in the public library must first be copied into the active workspace. Programs for each command are called from the library as the commands are executed.
- An application workspace is used to store data file setup and report setup parameters for a particular application.
- Data files may be stored in either (or both) the application workspace or in shared files storage. Shared files can be shared between applications, and between users.
- The user's private library consists of disk storage for application workspaces, and for shared files.
- It is possible to create ADRS II data files from external files and from files contained in other APL-based systems.
- Other system resources include the terminal and the high-speed printer.

APL-BASED PROGRAMS

APL (A Programming Language) is a powerful, versatile, and easy-to-learn programming language ideally suited for time-sharing systems in which many users have little or no programming experience or training.

A workspace in the central computer facility is made available to the terminal user who signs on to the time-sharing system. In the simplest mode of operation, the workspace and the terminal can function as a desk calculator, in which the user's keyboard entries are nearly identical to those that would be made on a standard desk calculator. The desk calculator computations are performed in the workspace, and the computation results are displayed or printed at the terminal.

In more sophisticated applications, the terminal user makes use of more powerful APL notations and commands to develop strings of APL statements that are entered via the terminal keyboard and stored under a calling name in the workspace. Each named APL expression is designed to perform some specific operation required by the user in the application being developed. Once such an expression has been entered into the workspace and named, the user can subsequently call the expression by typing in its assigned name. When an expression is called in this way, the workspace will execute the sequence of actions specified by the individual APL commands contained in the expression or statement.

Data matrices can also be entered at the terminal, assigned a calling name, and stored in the workspace under this calling name. A data matrix can also be called by typing in its name. When the user types in the calling name for a data matrix as part of an APL expression, the operations specified by the APL notations in the expression will be performed on the data, and the results of these operations can be stored under a different calling name, defined within the APL expression.

A data matrix, as defined by APL, can be viewed as a row-column matrix of variables, or components, in which the row-column coordinates constitute an address for accessing a specific component of the matrix. Thus, any component of a data matrix can be specified in an APL expression by typing the calling name of the matrix, followed by the row-column coordinates of the component.

It is easy to see that APL notation can be used to define a typical data file, consisting of individual records in which the information within the record is divided into fields of information, pertaining to that record. The individual record is identified by its row number, the individual fields within the record are identified by their column numbers, and the entire group of records that make up the data file constitute a matrix that can be assigned a calling name that defines the data file.

THE ADRS II APPLICATION PROGRAM

Because of the ease with which data files can be defined in APL notation, it is ideally suited to applications that involve the creation of data files, and the generation of reports derived from those data files. The ADRS II program, written in APL, provides the user with a sophisticated system for creating, updating, and manipulating data files, and for generating reports derived from selected information contained within those files. Each ADRS II command is the calling name for an expression, written in APL, that performs a specific function involved in defining, updating, or manipulating data in a file, or for defining and generating a report. Each data file created using ADRS II is assigned a unique calling name. Each predefined report is also assigned a unique calling name.

A specific application of ADRS II is developed at a terminal by entering the appropriate data file and report definition commands. In response to the entry of these commands by the user, the time-sharing system returns prompt messages that are printed or displayed at the terminal. These prompt messages guide the user, step-by-step, in entering the correct setup parameters that define data file layout and format, and define the format and layout of one or more reports derived from the data files. Entry of these setup parameters creates a specific application that is permanently stored in the central computer facility of the time-sharing system. The data files created for the application are also permanently stored.

When a terminal user desires to perform work involving an application, he retrieves the setup information and data files from permanent storage. Unless the setup parameters are being changed, a relatively small group of simple ADRS II commands is employed for updating the data file and for generating predefined reports. Again, message prompts are employed to assist the user in these functions. If a special report, not previously defined for the application, is required, the user may set up the special report parameters by borrowing from the setup for a predefined report, or by generating an entirely new setup. If a predefined report setup is modified, the unmodified version can still be retained in permanent storage.

THE PUBLIC LIBRARY

The public library in an APL-based time-sharing system contains, in permanent disk storage, the application programs that are available to all users. A user application must be initialized by loading the system code for an application from the public library into the user's active workspace. The system code for an application stored in the public library includes elements that are unchangeable for any application, and other elements (such as symbol tables) that are reserved for variable data.

It should be noted that the system code does not comprise the complete application program. Instead, the system code provides the user's active workspace with all of the application facilities needed to call and execute the programs for individual commands associated with the application. Consequently, unless a program for a command has already been made permanently resident within the active workspace as a result of fixing (to be discussed later), the system code interprets the user's command request entered at the time-sharing terminal, and requests the appropriate public library program needed to execute the command.

THE USER'S ACTIVE WORKSPACE

When a user logs on to the system at his terminal, the system allocates to the user an active workspace within the computer's temporary (transient) storage. All interaction between the terminal user and the system is via this active workspace. After the user has loaded into his active workspace the system code for an application program stored in the public library, he can execute application commands whose programs are stored in the library.

As mentioned above, when the user requests execution of a specific command, the system code in the active workspace interprets his command input and responds by calling from the public library the appropriate command execution program. This program is loaded into a program load buffer within the active workspace. When a different command is requested by the user, the system code calls the program for that command from the public library, and the program for this command replaces the previously executed command in the program load buffer. Since only one command at a time can be executed within the active workspace, it is only necessary for the active workspace to contain the program for the command being executed. This arrangement greatly reduces the amount of program storage required.

In addition to the system code and the program load buffer, the active workspace must contain storage for various setup parameters and tables, and must also contain storage for any data bases resident in the workspace. Finally, the active workspace must contain additional temporary storage for items associated with individual command execution, such as calculation results and records. Since a definite and very finite limit exists on the size of the active workspace, care must be taken in designing user applications to avoid exceeding allowable workspace size.

ADRS II APPLICATION WORKSPACE

An ADRS II application workspace is created in the user's active workspace (after first assuring that a fresh copy of the ADRS II system code is in the workspace) by executing ADRS II setup commands. These setup commands allow entry into the workspace of data file layout and format requirements, data file processing requirements, and layout and format requirements for one or more reports associated with a particular user application.

Assigning a unique name (workspace id, or wsid) to the application makes it possible to save an image of the active workspace in disk storage as an application workspace. Once an application workspace has been named and saved in disk storage, it can be loaded back into the active workspace by specifying the WSID in a load command. This action causes the current contents of the active workspace to be replaced by an image of the application workspace being loaded. Once the application workspace is loaded, reports defined in the workspace can be generated. Also, the application workspace can be changed by updating the data file contained in the application workspace, by performing preprocessing operations on the file, or by changing or adding data file and report setup parameters. To reflect such changes in the application workspace copy stored in disk storage, the active workspace must be saved back into the disk storage. This causes an image of the active workspace to replace the old version of the application workspace in disk storage.

SHARED FILES

An application workspace is designed to minimize the use of computer resources while it is being used in the active workspace. This is achieved, however, at the expense of efficient (compact) disk storage. For this reason, and because application workspaces have very finite storage limits, they cannot be used effectively for storage of large data bases. Moreover, storage of a data base within an application workspace increases the difficulty of sharing that data base with the user's other ADRS II applications, and also makes difficult the sharing of the data base with other users.

For the reasons just stated, a shared file (SF) storage system is available to each user in addition to application workspace storage. Both types normally use disk storage, but the SF file storage achieves much more compact and efficient data storage, with the penalty that more computer resources are needed for storage and retrieval than is the case with application workspace storage.

Data bases stored in the SF file storage system are readily accessible to all of your ADRS II applications, and can also be made accessible to other users. In fact, SF files can be accessed simultaneously by more than one user.

Normally, a data base to be stored in an SF file is first set up in the active workspace, assigned a file name, and transferred to SF file disk storage. To use an SF data base in conjunction with an application workspace contained in the active workspace, the file must be accessed by its assigned name and made available to the active workspace. For some operations, only certain records in the file must be made available to the active workspace; in other operations, the entire file must be made available. To update the copy of the file in disk storage, an image of the file must first be made available to the active workspace. Then, updates, changes, and additions are made in the active workspace, and an image of the updated file is stored back in disk storage, replacing the previous copy.

In most applications, an SF file contains only the naked data base. That is, the only contents of the file are the individual data components of the row-column matrix. In this case, all setup parameters and other operators required to use the file in an application must be contained within the application workspace. It is possible, however, to store a complete image of the active workspace in an SF file. In this case, the stored application workspace is treated like a data file during disk storage and retrieval, but it has all of the attributes of an application workspace when it is loaded into the active workspace.

USER'S PRIVATE LIBRARY

Each separate time-sharing system user is assigned a unique user identification code (userid). A private library is created by the system for each userid. This private library contains all user-created application workspaces and shared files that the user designated for saving (application workspace) or storing (SF files) in disk storage. Files and workspaces are retrieved from disk storage by executing the appropriate command, followed by the workspace identification (WSID) or the file name (filename). Calling a WSID from disk storage always causes the application workspace to be loaded into the active workspace. Calling an SF filename for a naked data file from disk storage causes all or a portion of the file to be activated into the data file portion of the active workspace.

The user may determine the contents of his private library by executing the appropriate APL system commands that request a listing of his workspace library or his file library. Application workspaces and files can be deleted (erased) from the library by executing the appropriate ADRS II or APL system command.

Access to the user's private library by other users is completely under the control of the owner of the private library. Access can be controlled individually for each application workspace and each file by specifying which userids are permitted access, and the degree of access permitted.

EXTERNAL USER-DEFINED FILES

External (non-ADRS II) user-defined data files are also accessible to ADRS II applications. The file identification of the external file must be known, as well as the record layout information, including the type of coding utilized. Selected columns of selected records can be extracted from the external file, formatted for compatibility with ADRS II, and loaded into either the user's active workspace or into an SF file.

APL-BASED FILES IN OTHER APPLICATION SYSTEMS

All user-defined ADRS II applications constitute an APL-based system. Data files can be passed between ADRS II systems and other APL-based systems that manipulate data in a record or tabular format. The rows and columns to be passed are specified, and the selected data is then extracted from the data matrix and stored in the form of APL variables that define the data interchange matrix, the data interchange width, and the data interchange names. This method permits data to be passed to or from an ADRS II application. When the data is being passed to an ADRS II application, the ADRS II columns that receive the incoming data can be specified.

APPENDIX E. MANAGEMENT AND CONSERVATION OF TIME-SHARING RESOURCES

Capabilities are provided within ADRS II for making the most efficient utilization of system resources. When designing an ADRS II application, these capabilities are employed to optimize the use of those resources. This section discusses the following:

Application workspace requirements
Data file storage conservation
Conserving application workspaces
Reducing public library access requirements

HIGHLIGHTS

- Generally, a separate application workspace must be created and saved for each uniquely formatted data file that serves as the master file for report generation.
- If the workspace size is not a constraint, the data file should normally be saved in the application workspace. Larger files that cannot fit within the workspace must be stored in shared files storage.
- When a data file is saved in both the application workspace and in shared files, one of the two copies should be selected as the master copy.
- Data file storage requirements can be reduced by careful file design. Some of the techniques employed are:
    - Reducing column widths by using codes in place of the actual data.
    - Eliminating redundant file information through the use of related files.
- The number of application workspaces required can be reduced by the following techniques:
    - Creating a master workspace to handle multiple data files.
    - Creating a master workspace to define two or more applications, using the express mode and application setup tables that can be called in the express mode.
- Accessing of the public library can be minimized by fixing the programs for frequently used commands in the application workspaces, with the penalty of reducing the available workspace size for data.

APPLICATION WORKSPACE REQUIREMENTS

Generally, a separate workspace must be created and saved in disk storage for each uniquely formatted data file that serves as the master data file for report generation.

Usually, the name assigned to an application workspace is associated with either the master data file, or with the family of reports generated from the file.

DATA FILE STORAGE CONSERVATION

If the ultimate size of the master data file is small enough to be contained within the application workspace, the file should normally be saved in the application workspace.

If a data file must be shared with two or more applications, it should be stored in shared files (SF) file storage, even though it is also saved in the workspace. Any data file that is too large to be retained in the application workspace when it is saved must be stored in SF file storage.

When a data file is saved in the application workspace and is also stored in SF file storage, a determination must be made of which copy should be the master copy. If the file is only authorized for update while a specific application workspace is in the active workspace, then the copy in the application workspace should be designed as the master copy, and the SF file copy should normally be updated whenever the master copy is updated.

If, however, a file stored in both the application workspace and in an SF file can be accessed and updated by more than one application or user, the SF file copy should be designated as the master copy. In this case, the copy saved in the application workspace should be updated from the master copy immediately after the application workspace copy is loaded into the active workspace.

Data file storage requirements can be minimized by careful file design. Since the widest possible data entry in each column must be accommodated within the file storage area, any design technique that reduces column widths will conserve storage space.

In some types of files, certain columns may have a relatively small number of possible entries. In these cases, a table containing all possible values can be created in the application workspace, with each value being correlated to a number or letter code used in the data file in place of the real value so as to reduce column width. Instructions are then entered in the application workspace that cause the actual value to appear in reports in place of the code contained in the data file.

Elimination of redundant information in two or more separately stored files is another effective way of reducing storage requirements. In this case, the redundant information is retained in only one of the files, and is related by a common access key to the other files where the redundant information is required. The file containing the redundant information must be stored as an SF file, and is defined as a related file. During report generation, the master file being used for the report can be tied by the common access key to the related file, and redundant information for each record can be extracted from the related file.

CONSERVING APPLICATION WORKSPACES

When two or more users maintain separate data files that have identical setup parameters, a master application workspace can be created that specifies the file layout and format, and the report setup parameters for all reports required by the participating users. The data files themselves are not saved in the workspace, but instead are stored as SF files. The master application workspace is made available to all participating users for loading into their active workspaces. The user then activates his own data file, and uses the master application workspace for performing any operation on the file.

Another approach to workspace conservation is to create a master application workspace that is used exclusively with the express mode. This permits the master workspace to contain the setup parameters for two or more different applications, each of which would normally require its own application workspace. The setup parameters for each application are stored in tables in the master workspace, and each table is assigned its own calling name for use in the express mode. To set up an application, the user enters the express mode, and then enters the calling name of the table (or tables) used to set up his particular application. Under this approach, all data files would be stored in shared files, and no data file would be saved in the master workspace.

It is hardly ever necessary to create more than one application workspace when two or more users employ the same data file to produce different types of reports. Since the application workspace is capable of storing the setup parameters for many reports, the reports for all users can be stored in the same workspace.

In some instances, the workspace size limitation becomes a problem in designing an application. Since a substantial portion of the total workspace is occupied by the ADRS II program system code, and since part of this code is unaffected by the application, workspace storage requirements for the system code can be reduced by eliminating that portion of the code which is unaffected by the application. An ADRS II command is provided that allows approximately 46K bytes of system code to be erased just prior to saving the workspace after all work is completed. When this method is used, the deleted code must be restored to the active workspace immediately after the application workspace is loaded into the active workspace at the beginning of a new job.

REDUCING PUBLIC LIBRARY ACCESS REQUIREMENTS

Since the program for each ADRS II command being executed must normally be fetched from the public library, accessing of this library can be greatly reduced by making the programs for frequently used commands permanently resident in the application workspace. An ADRS II command is provided that allows you to "fix" the programs for one or more commands in the workspace. If a workspace storage squeeze subsequently develops, one or more of the fixed programs can be "freed" (erased) from the workspace.

The remaining pages in this section provide master copies of all worksheets (with the exception of those pertaining to the setup and generation of reports) for the tasks identified on the overall job flow diagram Figure 74. The worksheet(s) that are applicable to each identified task are indicated in the section "Appendix A. List of Tasks in Overall Job Flow Diagram" on page 279.

The following worksheets are included:

- Estimating Workspace Size Requirements (Figure 76 on page 301). This worksheet allows you to estimate the ultimate size of an ADRS II application when the data file used with the application reaches its maximum size. The worksheet indicates the storage size requirements, by category. This worksheet is particularly valuable when the maximum available workspace size allocation represents a potential constraint on the design of the application. If your application design results in a workspace size that is close to, or exceeds, the allocated size, you may have to request a larger size, or redesign the application. Since the size of the data file is the major determinant of workspace size, your redesign should normally concentrate upon the data file, particularly the widths of numeric columns. Widths of numeric columns can be reduced by eliminating decimal positions, or by changing the base multiplier for the numeric entries in a column (changing from hundreds to thousands, for example). Alphameric column widths can be reduced by truncating lengthy entries, or by replacing the entries with a code that provides a tie to column 0 of a related file stored in shared files storage. During report generation, the code value is replaced, in the report output, by data extracted from the reference file (see "Using Variable Data in Text" on page 135, and "Setting Up Patterned Reports" on page 145 for more details).

- Application Summary Data (Figure 77 on page 302). This worksheet is intended to serve as the "configuration control" document for an application. The form is divided into the following four sections:

  - General. Identifies the workspace ID, workspace size, and terminal setup.

  - Files. Provides a summary of the data file setup in the application (details are in worksheet Figure 81 on page 306.) Also identifies names/IDs of all files stored outside the application that are used with the application (details are provided in worksheets Figure 84 on page 309, Figure 86 on page 311, and the section "Passing Data between APL-Based Applications" on page 236).

  - Miscellaneous Stored Setups. Provides a summary of the stored setups in the application (with the exception of report setups). Details are provided in worksheets Figure 85 on page 310, Figure 82 on page 307, Figure 84 on page 309, Figure 83 on page 308, Figure 79 on page 304, Figure 80 on page 305, and Figure 56 on page 182.

  - Reports. Provides a summary of Regular (R) and Patterned (P) report setups stored under the SETREPORTS command. Details are provided in section "Detailed Job Flow and Worksheets For Reports" on page 168

You are provided with a means of maintaining the up-to-date configuration of the application by the worksheet Figure 77 on page 302, and the set of referenced worksheets for the most recent terminal sessions that created, changed, or deleted the details of the setups in each of the four sections listed above.

- Examining Workspace Content (Figure 78 on page 303). Provides a checklist of elements stored in the application that are to be examined during a terminal session. Hard-copy printouts of the resulting lists and data provide an alternative means of defining the configuration of the application. These printouts, with an application summary data worksheet used as a cover sheet, can be used to define the configuration of an application.

- General-Purpose Editing (Figure 79 on page 304). A separate worksheet is prepared for each user-defined table, and for each system-defined variable that is modified, using the EDIT command. A set of these worksheets for all tables/variables created or modified by the EDIT, GETCHAR, GETMAT, GETDAT, TO, and FROM commands provides a complete definition of all user-affected tables in the application.

- Business Factor Worksheet (Figure 80 on page 305). Defines the current values for all business factors stored in the application, and indicates any new business factors to be created, or any existing business factors whose values are to be changed in the text terminal session.

- Data File Setup (Figure 81 on page 306). Documents the initial data file setup, and each subsequent change to the setup.

- Data Entry without Full-Screen Edit Mode (Figure 82 on page 307). Used to document guided data entry job setups, and each data entry task performed on data files.

- Program Worksheet (Figure 83 on page 308). Separate worksheet for each stored program documents the statements stored under the program number. Also used to enter statements to be executed using the CALCULATE command.

- Shared Files Worksheet (Figure 84 on page 309). Separate worksheet documents operations on Shared Files for each job.

- Consolidation Worksheet (Figure 85 on page 310). Separate worksheet documents each consolidation job that is performed.

- LOADFILE Worksheet (Figure 86 on page 311). Separate worksheet documents each job in which a user-defined external file is converted and loaded into the active workspace, or into shared files.

WORKSHEET FOR ESTIMATING WORKSPACE SIZE REQUIREMENTS

The workspace size required for an ADRS II application is dependent upon the type and amount of data being stored in the application. Minimum workspace size is approximately 200K bytes, but the minimum size normally installed is 450K bytes.

The worksheet Figure 76 on page 301 gives a breakdown of the major elements that are contained within the application workspace, and their workspace storage requirements:

> **Note:** Actual Workspace Size can be obtained by executing the)LOAD command.

Element Name and Description	Storage Size (K Bytes)
System Code This code is contained in the copy of ADRS II stored in the public library. The first step in creating a new ADRS II application is to load this system code into the active workspace. Approximately 46K bytes of the system code is immutable. The remaining 64K bytes contains code that is alterable in each application (system variables).	 110
Program Load Buffer The system code described above does not include the individual ADRS II command programs. The individual command programs are stored in read-only disk memory that is accessible to all users. When an ADRS II command is to be executed, it is called from read-only disk memory and loaded into the Program Load Buffer Area of the workspace.	 20
User-Defined Stored Setups This typically includes stored report setups, stored calculation statements, variables created by the EDIT and BUSFACTS commands, job setups created by the jobname command, and the consolidation setup.	 10

Subtotal bytes (A) 140K

Data File. Data file size is determined by the number of rows, the number of columns, the types of columns, and the column widths. You can estimate the workspace storage requirement (in K Bytes) as follows:

No of Rows _____ X No Numeric of Cols _____ X 4 = __________
No of Rows _____ X Sum of Widths of Alphameric Cols _____ = __________
Total Char. Pos.

Data File Subtotal (B) .... __________

Stored ADRS II Command Programs. Command programs can be stored in an application by means of the FIX command. You can determine the workspace storage requirement for any command program that you are planning to store in the application by executing the FIX command. Enter the sum of the storage requirements for all such commands on this line (C) ... __________

Total Workspace Size Requirement (D) .. __________
(Sum of A, B, and C)
Maximum Available Size (E) .... __________
Amount of Space Left (E-D) .... __________

Figure 76. Worksheet for Estimating Workspace Size Requirements

WORKSPACE ID__________

WS SIZE

__________ Estimated

__________ (Amt. Being Used)

__________ (Amt. Remaining)

_______ Max.

TERMINAL SETUP:

__________ Type (D or H)

_____/_____ Depth/Width

Disp. Dim

__________ Kbd. Type (A or N)

DATA FILE SETUP:

__________ No. of Rows

_____/_____ Alpha/Numeric

No. of Columns

_____/_____/_____ Alpha/Numeric/Sum

Total Char Width

(Sum of all Cols.)

__________ No. of Header Lines

FILES STORED OUTSIDE THE APPLICATION:

SHARED FILES: ______________________________
(List Files by Their Filenames)

EXTERNAL FILES: ______________________________
(List Files by Thier Fileids)

OTHER APL-BASED FILES: ______________________________
(List APL-Based Applications by their Wsids)

CONSOLIDATION SETUP:
(Complete this
Section only if
Application is
the Home WS)

SHIPPED FILES ______________________________
(List Files by Their Filenames. Prefix Filename with an Asterisk (*) if the File is Summarized Before Shipment)

__________ Totals or Variances

__________ Summary Only, or Summary & Details

STORED JOB SETUPS:

__________ Fastrow

__________ Input

__________ Ship

__________ Plot

STORED PROGRAMS: ______________________________
(List Programs by Their Numbers with an R or C Suffix to Indicate Whether Number is for a Regular (R) or a Control Break (C) Program)

STORED BUSINESS FACTORS: ______________________________
(List By Name. Prefix name with single asterisk (*) if factor is used in calculation statements, double asterisk (**) if factor is used in the text of report setups, or triple asterisk (***) if used in both)

LIST OF EDITNAMES (VARIABLES): ______________________________
(Indicate use of the variable by one or more of the following suffixes (in parens) to the name: R = Report Text; C = Calculation Statement; E = Express Mode command/response string; T = Indexed Look-Up Table; S = system-defined variable (includes variables such as STORELIST, FROMCOLS, DATACOLS); A = APL Matrix)

ADRS2 COMMAND PROGRAMS FIXED IN THE APPLICATION: ______________________________
(List Command Names and (WS Storage Requirements) for Each)

FOR ALL REPORT SETUPS UNDER SETREPORTS, LIST NAME, NUMBER, AND TYPE (R) OR (P)

Figure 77. Worksheet - Application Summary Data as of _____

JOB ________ NAME OF APPLICATION ________

TASK NO. ________

REQUIREMENTS

COMPLETE LIST OF ADRSII COMMANDS ________ (yes of no) (Execute COMMANDS)

QUERY ________ (List options: ALL, DATA, HEADS, SETUP, REPORTS, PROGRAMS)

ADDITIONAL SELECTIONS: ________

LIST ALL ROWIDS/ROW NO.S IN FILE (execute ROWIDS) ________ (yes or no) LIST SELECTED ROW NO. S (execute SHOWIF) ________ (yes or no)

LIST ADRSII COMMAND PROGRAMS STORED IN APPLICATION (Execute FREE) ________ (yes or no)

LIST CURRENT SETTINGS UNDER SETPAGE ________ (yes or no), UNDER SETSPACE ________ (yes or no)

UNDER SETSPECIAL ________ (yes or no)

OBTAIN CURRENT CONSOLIDATION SETUP (Execute SETCON) ________ (yes or no)

COMPLETE LISTING OF ALL VARIABLES (execute)VARS) ________ (yes or no) LIST OF EDITNAMES ________ (yes or no)

VALUES OF VARIABLES ________ (List names of variables)

LIST OF BUSINESS FACTORS AND VALUES (Execute BUSFACTS) ________ (yes or no) LIST OF JOBNAMES AND SPECS (Execute JOBNAMES) ________ (yes or no)

EXAMINE DATA FILE AND WORKSPACE SIZE, USING FILL COMMAND ________ (yes or no)

EXPRESS MODE:

Figure 78. Worksheet for Examining Workspace Content

JOB ____________________

APPLICATION NAME________________________

TASK NO. ____________

?WHAT?:____________________________
Name of Table

TABLE IS USED WITH____
(Describe use of table with Stored Pgms., Reports, Express Mode, etc.)

TABLE IS INDEXED BY____
(Describe how table is indexed)

TYPE OF TABLE _______________
(N or C)

EXPRESS MODE:

CONTENTS OF TABLE:

?LINE n?	CURRENT OR INITIAL CONTENTS OF LINE n	IS THE LINE BEING INSERTED	CHANGE, IF ANY, TO CONTENTS OF LINE n

Figure 79. General Purpose Editing Worksheet

JOB ____________ NAME OF APPLICATION ________

TASK NO. ________

NAME	TYPE (N OR C)	VALUE		USED WITH (Indicate Stored)
		CURRENT	CHANGE TO	Pgm. No.s or Report No.s)

EXPRESS MODE:

Figure 80. Business Factors Worksheet

JOB ____________ APPLICATION NAME ____________

TASK NO. ________

COLUMN SPECIFICATIONS

COL. NO.	INITIALIZED OR CURRENT SETTINGS				CHANGES TO CURRENT SETTINGS					
	TYPE (A OR N)	WIDTH	DEC. POS.	COLUMN HEADER	NEW	DROP	CHANGE OR NEW			
							TYPE (A OR N)	WIDTH	DEC. POS.	COLUMN HEADER
0	A		N/A							

INITIALIZED OR CURRENT SUMMARY	SUMMARY AFTER CHANGES ARE MADE
TOTAL COL.S ____/______/____ ALPHA/NUMERIC/SUM	TOTAL COL.S ____/______/____ ALPHA/NUMERIC/SUM
TOTAL COL WIDTHS ____/______/____ ALPHA/NUMERIC/SUM	TOTAL COL WIDTHS ____/______/____ ALPHA/NUMERIC/SUM
TOTAL LINE WIDTH ______________ (TOT. COL.S - 1) + (TOT. WIDTH)	TOTAL LINE WIDTH______________ (TOT. COL.S - 1) + (TOT. WIDTH
	NET CHANGE IN LINE WIDTH______________

EXPRESS MODE:

Figure 81. Worksheet: Data-File Setup

JOB ____________ NAME OF APPLICATION ____________

TASK NO. ____________ FILENAME OF FILE IF IN SHARED FILES ____________

FILE PROTECTION: ADDLOCK ______ IDLOCK ______ SETMIX ______
(Indicate on or off)

DATA ENTRY SEPARATOR ______ ROWIDS BEING DELETED (WRITE SELECTION STMT):
IF 0 EQ ____________

ROWIDS BEING INSERTED OR CHANGED

EXISTING ROWID	NEW ROWID (INSERT)	CHANGE EXISTING

EXPRESS MODE:

GUIDED DATA ENTRY JOB SETUP: ____________ ____________ (1 = FASTROW, 2 = INPUT)
JOB NAME CODE

COL NO.S ____________ ROWIDS/ROW NO.S ____________

USE COL. NO. ______ AS A PROMPTING COLUMN

INPUT COMMAND: COL.NO.S ____________ OR JOBNAME ____________ VERIFY (/V) ____________

ROWIDS BEING UPDATED ____________

FASTROW COMMAND: JOBNAME ____________ ____________
(List COL.NO.S IN JOBNAME SETUP)

ROWIDS BEING UPDATED: ____________

FASTCOL COMMAND: SELECTION STATEMENT ____________ SORTING STATEMENT ____________

NEW ROWIDS BEING ENTERED IN COL. 0 ____________

COL. NO.S BEING UPDATED ____________

SHOW DATA ENTRIES BELOW FOR INPUT, FASTROW, OR FASTCOL COMMAND (SEPARATOR BET. ENTRIES)

ROWID (INPUT OR FASTROW) OR COL NO. (FASTCOL)	STARTING COL NO. (FASTROW) OR STARTING ROWID (FASTCOL)	COLUMN ENTRIES (INPUT OR FASTROW) OR ROW ENTRIES (FASTCOL) INDICATE COLUMN NO.S OR ROWIDS IN ENTRY SEQUENCE

Figure 82. Worksheet: Data Entry without Full-Screen Edit Mode

JOB ________________

TASK NO. ___________

CALCULATE?__________
(Instead of Program)

NAME OF APPLICATION ______________

PROGRAM NO. _____________________

TYPE ____________________________
Regular (R) or Cont. Brk (C)

PROGRAM NAME ____________________

STATEMENTS:

NO.	STATEMENT		COMMENTS
	INITIAL OR CURRENT	CHANGE TO	
EXPRESS MODE:			

Figure 83. Program Worksheet

JOB ________________ APPLICATION NAME ________________

TASK NO. ___________

ACTIVATE: ______________________________
(Enter filename to Activate)

ANALYZE: ______________________________
(List filenames to be Analyzed)

SELECTION STATEMENT OR ALL ______________________________

COL. NO.S TO BE RETAINED OR ALL _________________________

RECORD NO. OF HITS FOR EACH FILE ________________________

FILE ID	NO.	NO. OF HITS
	TOTAL HITS:	

STORE: ________________
(Enter filename to Store)

STORELIST (List Variable Names)

SHIP: COL NO.S OR ALL __________ OR JOBNAME ____________

ROWIDS OR SELECTED OR ALL _________________

(IF SELECTED, INDICATE SELECTION STATEMENT): _________________

SHIP FILENAME _____________________________

MESSAGE ____

USERID OF CONSOLIDATOR, OR SELF ______________________________

PURGEFILE: ____
(Enter filenames to be Deleted)

EXPRESS MODE:

Figure 84. Shared Files Worksheet

SUMMARIZE BEFORE SHIPPING (EXECUTE SUMMARY COMMAND)

USERID	SHIPPED FILENAME	SUMMARY SEGMENTS IN COL. 0		
		1ST SET	2ND SET	3RD SET

FILES BEING CONSOLIDATED ______________________________
(List filenames)

DETAIL CATEGORIES IN CONSOLIDATED FILES:
____
(List Details ROWIDS in Shipped Files)

EXECUTE READER COMMAND TO BRING SHIPPED FILES INTO PRIVATE LIBRARY? __________
Yes or No

CONSOLIDATION SETUP (EXECUTE SETCON COMMAND)

SETUP PARAMETER	FIRST PASS	SECOND PASS	THIRD PASS
SUMMARY & DETAIL OR SUMMARY ONLY			
VARIANCE (V) OR TOTALS (T)			
FILE LIST (List Filenames)			

CONSOLIDATE (EXECUTE CONSOL COMMAND)

DISPLAY MESSAGE? __________
Yes or No

ENTER Y TO CONSOLIDATE ________

EXPRESS MODE:

Figure 85. Consolidation Worksheet

JOB NAME ________________ APPLICATION NAME ________________

TASK NO. ________________

FILEID OF EXTERNAL FILE ________________________

PRINT FIRST 5 RECORDS FOR RLD? ____________
Yes or No

RECORD LAYOUT DEFINITION. IF STORED IN A TABLE,
INDICATE TABLE NAME __________

ADRS COL NO.	STARTING REC. NO.	FIELD STPOS	ENDING REC. NO.	FIELD ENDPOS	CONV. CODE	DECSET

TYPE OF OPERATION: REFRESH _____REFRESH/STORE ____ MERGE ____
INTERSECT _______

IF REFRESH/STORE, ENTER MASTER FILENAME ________________________________

SELECTION STATEMENT OR ALL ____

EXPRESS MODE:

Figure 86. Loadfile Worksheet

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